

**LAW ENGINEERING
TESTING COMPANY**

REPORT OF ENVIRONMENTAL EVALUATION

6/87

100 CONGRESS BUILDING DEVELOPMENT

AUSTIN, TEXAS

**SUPERFUND
FILE**

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1.0 INTRODUCTION

The 100 Congress Avenue Building site is located in downtown Austin, approximately 1 block north of Town Lake and bounded by the streets of Congress, Colorado, West 2nd and 1st. Development at the 100 Congress site is phased. Phase I is a multi-story office building with an underground parking garage that is in its final stages of completion and located on the eastern half of the property. Phase II, located on the western half of the property, is undeveloped at the present time.

The subsurface conditions across the site consist of approximately 30 feet of alluvial silty clay to sandy silt which overlies five to ten feet of sand and gravel. The eroded surface of the Eagle Ford Shale is present at a depth of approximately 40 feet. Ground water flow is generally to the south to southeast towards Town Lake downgradient from the site and within the sand and gravel unit of the alluvial soils.

During construction of the Phase I parking garage, ground water contaminated with coal tar constituents was found entering the excavation. The Phase I project is now virtually complete and ground water which would enter the underground garage is being collected, treated and disposed by permit into the storm sewer. The method of disposal, permitting and operation was developed by Radian Corporation, a consultant to Lincoln Properties, the developer. Maxim Engineers, a geotechnical consulting firm, provided onsite drilling, sampling and well installation services along with geotechnical evaluation.

Radian has identified the source of the contaminated ground water as an abandoned coal tar pit which is located just west of the Phase I project, at the future site of the Phase II project. A partial closure of the coal tar pit has been performed by the removal of the coal tar and grossly contaminated soil. The removed coal tar and grossly contaminated soil was present in the alluvial soils in the northern portion of the Phase II project. This partial closure has been approved by the Texas Department of Health. The Health department has tentatively approved the second phase of closure which would be to remove other contaminated soils prior to construction of the Phase II project, which has a tentative date to begin within two years and completed within five years.

Law Engineering was retained by Metropolitan Life to provide environmental and engineering evaluation so that Metropolitan can assess the long and short term liabilities prior to taking further action with regard to commitment to the project. The following portions of this report describe the information and data reviewed, the actions by Lincoln and their consultants, Law

Engineering's site assessment work, an assessment of Lincoln's actions, other Phase II closure alternatives, and our conclusions regarding:

- . Soil and ground water contamination,
- . Offsite migration of ground water,
- . The existing ground water treatment system,
- . Phase II closure plans and
- . Long and short term liabilities

2.0 BACKGROUND INFORMATION AND DATA

Background information and data supplied by Metropolitan from Lincoln Properties and their consultants was reviewed by Law Engineering in order to assess actions to date by Lincoln and determine if additional data was required to fully evaluate the project. As a result of this initial assessment and review of data, Law Engineering requested additional information and data through Metropolitan. A verification site assessment was performed which included soil and ground water sampling and analysis at the Phase II site and ground water collection and filtration system sampling and analysis at the Phase I site. The following portions of this section discuss these topics in more detail.

2.1 Review of Documentation

Approximately 200 documents regarding the 100 Congress Building site was supplied to Metropolitan by Lincoln Properties. A listing of these documents is shown in Table 2-1. Basically, the documents can be divided into two categories which in turn can be subdivided into sub-categories as follows:

Technical:

- Site Assessment
- Waste Characterization of Soil and Ground Water
- Waste Treatment and Disposal of Soil and Ground Water

Regulatory:

- Notification
- Advisory
- Response to Requests
- Permitting

2.2 Actions by Lincoln

On July 1, 1985, Lincoln Properties discovered a black fluid flowing into the Phase I parking garage excavation and immediately hired Radian to investigate this situation. The recovered black fluid was thought to have a petroleum origin and was initially disposed of in a brine injection well in the vicinity of Giddings, Texas. Contaminated soil from the Phase I excavation was disposed of in the Austin Community landfill pursuant to the Texas Department of Health recommendations. Radian's initial analysis of the black fluid showed it did not have a petroleum origin. Therefore it could not be injected in a brine well and was stored on site in storage tanks.

Based on the analysis, Radian notified Lincoln to take steps to protect workers in the excavation pit and monitor the industrial

hygiene and occupational safety. Similarly, Lincoln Properties notified the EPA, National Response Center and Spill Response Unit of the Texas Department of Water Resources in Austin, Texas. After notification, several meetings occurred between Lincoln, Radian, and the regulatory agencies, including the Texas Department of Water Resources and Texas Department of Health. During the meetings, the Texas Department of Health agreed it had jurisdiction.

By the first part of August, 1985, Lincoln was disposing of the contaminated ground water by trucking it to a Class I facility in Texas City. Radian began conducting geotechnical and water level investigations. Additionally, Lincoln Properties requested permission from the Austin City Water and Waste Department to discharge into the sanitary sewer. This request was refused in September, 1985, because of quality standards and limited capacity. However, the City did send Lincoln Properties to the Austin-Travis County Health Department for permission to discharge into the storm sewer system after any required pretreatment.

During the next several months, several meetings occurred between all the regulatory agencies contacted except for the EPA. In May, 1986, the City of Austin Water and Waste Water Department issued a special and conditional industrial waste discharge permit for ground water discharge into the sanitary sewer. In the same period, the Texas Department of Health issued a letter stating that the coal tar material is non-hazardous based on analyses provided by Radian through Lincoln Properties.

During the remaining part of 1986, Lincoln Properties attempted to gain a discharge permit to the storm sewer for the treated ground water collected at the Phase I site. At this time, the Phase I site had a ground water collection system and temporary treatment system designed by Radian which treated ground water prior to discharge into the sanitary sewer. The City of Austin and the Texas Water Commission provided input to the Austin-Travis Health Department in establishing the requirements that Lincoln Properties must comply with prior to discharge into the storm sewer. These requirements were:

- . Removal of coal tar body
- . Continued maintenance and operation of facilities
- . Continuation of sampling and reporting operations required by the water and waste water utility discharge permit
- . Periodic monitoring and inspection by the Austin-Travis Health Department.

Therefore, in December, 1986, Lincoln Properties contracted with various contractors to remove the coal tar body in accordance with the closure plan developed by Radian. The closure plan was divided into two phases. The first phase would be the removal of the coal tar body. The second phase would be the removal of all contaminated soil during the excavation of the Phase II development project. During the first part of 1987, Radian designed a permanent treatment system that treated ground water as required by the Texas Water Commission, Austin-Travis County Health Department and Water and Waste Department of the City of Austin. After a period of system checks and monitoring, the Austin-Travis County Health Department issued a discharge permit to the storm sewer as documented by the Austin-Travis Health Department's letter of January 23, 1987 to Lincoln Properties. A condition of the permit was that a special permit review will be conducted at the end of the five year period referenced as the time frame required for the completion of the second phase of the coal tar excavation site closure plan as approved by the Texas Department of Health. Further, a condition of the permit is that all remaining contaminated soil be removed from the site within the five years period.

Table 2-2 presents a more detailed chronology of events. This chronology was prepared by Lincoln Properties and found in documentation of the project as supplied to Metropolitan.

2.3 Law Engineering's Site Assessment

Law Engineering's site assessment was performed in two parts. The Initial Field Investigation was initiated on April 14, 1987 and the Final Field Investigation was performed on May 25, 1987. The purpose of the site assessment was to verify data collected by Lincoln's consultants and to specifically obtain ground water data to evaluate ground water flow and quality.

2.3.1 Field Methods

Initial Field Investigation

During the initial field investigation, borings, soil sampling, well installation, well development, and ground water sampling were performed from April 14, 1987 through April 18, 1987. One additional ground water sample was collected and stabilized water levels were measured on April 27, 1987. This field work was performed at the Phase II site.

Borings were advanced with an eight inch O.D. hollow stem power auger utilizing split spoons for sampling the soils. Borings were drilled through the upper fill material, the entire section of Colorado River alluvium, and approximately four feet into the underlying Eagle Ford Shale. The location of these borings is presented on Figure 2-1. Total depths drilled ranged from 40.5

to 45 feet with depths increasing from south to north. A generalized stratigraphic section is presented on Figure 2-2. The depth that the shale was encountered agreed with data previously presented by Radian.

Soil Sampling with a split spoon sampler was performed during hollow stem power augering. Continuous sampling was performed ahead of the auger through the upper ten feet, then every five feet thereafter until the coarse clastics zone of the alluvium was encountered. Continuous sampling was then performed to the first encounter of the fissile shale of the Eagle Ford Shale unit near the bottom of the borings. Samples were visually described and then bagged in quart-size zip lock bags for analysis with the HNU meter. Soil samples selected for chemical analysis were then placed in pint-size glass jars and stored on ice until delivery to Southern Petroleum Laboratories (SPL) in Houston, Texas. The April 14-18, 1987 samples were delivered to SPL using standard chain-of-custody procedures on April 20, 1987. Boring logs of each boring are presented in Appendix D.

Wells were installed in each boring after the auger encountered approximately four feet of fissile shale at the bottom of the borings. Well material consisted of 2 inch diameter schedule 40 PVC. Wells consisted of an 11 inch tail cap pipe threaded onto the bottom of a 10 foot section of 0.020 inch slotted PVC. Solid sections of PVC continued to within a few inches of ground surface and were topped with a slip-on cap.

Wells were installed through the hollow stem of the auger. Colorado Silica Sand, 12/20 grade, was poured into the annular area between the hollow stem and the well casing as the auger was retrieved at five foot intervals to allow the sand pack to fill the annular space just below the auger bit. In general, sand packs were taken to approximately two to three feet above the top of the slotted screen section. The auger was then carefully removed and 50 pounds of 1/4 inch bentonite pellets were added to form a two to three foot seal above the sand pack. Wells were then grouted to within one foot below grade with a Portland Type I cement/bentonite grout. After 12 to 24 hours, surface pads were constructed inside a 2 1/2 x 2 1/2 foot x 4 inch wooden form with sacrete concrete to hold an 8 inch diameter manway with a 12 inch skirt. The concrete was troweled to form a gentle slope away from the center of the manways to allow for precipitation runoff as shown in Figure 2-3. During installation of the manways, sacrete was added inside the manways to just a few inches below the top cap. Well installation reports are presented in Appendix E.

The surface pad for MW-1 was damaged by dozer operations on April 18, 1987 during grading of the site in preparation for open house activities at the 100 Congress Avenue Building. An existing monitor well surface pad installed by Radian was also damaged.

Our drill crew returned on April 21, 1987 to repair the MW-1 surface installation damages.

Well development and water sampling took place approximately 12 hours or longer after installation. Five to sixteen bailer volumes (approximately one liter each) were removed to develop the wells until constant pH, temperature, and specific conductivity readings were obtained. All development water was stored in a 55 gallon drum for subsequent disposal by Lincoln Properties. During ground water sampling, approximately seven to ten bailer volumes were removed from each well (three to five well volumes). Samples were collected with a sample kit for each well consisting of glass bottles and vials supplied by SPL. They consisted of three one-liter bottles, two 250 ml bottles, and two 40-ml VOA vials with various preservatives or none at all depending on the analyses to be performed. A one-pint wide mouth glass jar was used to measure pH, temperature, and specific conductivity of each ground water sample. This sample was not retained for laboratory analysis. All samples were placed on ice until delivery to SPL on April 20, 1987 using standard chain-of-custody procedures.

Well MW-5 only yielded one bailer volume of water during initial development and could not be sampled until April 27, 1987. Sampling was performed as described above and samples were delivered to SPL on April 28, 1987 using standard chain-of-custody procedures. During the April 27th site visit stabilized water levels were measured and are presented in Table 2-3.

During soil and water sampling and development the split spoon samplers and bailer were decontaminated between samples, borings, and wells. The hollow stem auger was decontaminated between borings.

Final Field Investigation

During the final Field Investigation on May 25, 1987, four monitor wells, four sump pits, and the ground water treatment system were sampled. Well elevations were also surveyed and water levels were remeasured for all five monitor wells. These elevations and water levels are presented in Tables 2-3 & 2-4. Two near surface soil samples were taken from a single boring near MW-2.

Sampling and decontamination for ground water samples (MW-1 through MW-4) were performed in a similar manner as during the initial investigation.

The four sump pits (numbers 1,2,3, and 4) located on level five of the Phase I parking garage (Figure 2-5) were sampled by lowering a sampling jar attached to a line and retrieving water

from the pits. Water was then placed into labeled glass sample bottles and tightly capped. Dedicated sampling jars and lines were used at each sump.

Two water samples were collected from the ground water treatment system located on level one of the Phase I parking garage. One sample of effluent was taken from a sampling port located in the system subsequent to treatment but prior to discharge into the storm sewer. The second sample was partially filtered influent after cartridge filtration but prior to activated carbon treatment. This sample was taken by submerging sample bottles underwater in the activated carbon treatment tank above the filter bed. The treatment system samples were also collected in labeled glass bottles and tightly capped.

During sampling of the monitor wells and sump pits, a separate glass container of each sample was collected, and field measurements were taken immediately for pH, temperature, and specific conductivity.

A stainless steel hand auger was used to collect two soil samples from a single boring approximately three feet east of MW-2. Composite samples were collected from the 2 to 3.5 foot interval and the 3.5 to 4.5 foot interval. The boring was terminated at 4.5 feet and backfilled with soil.

The water and soil samples collected on May 25, 1987 were placed on ice until delivery to Southern Petroleum Laboratories, Inc. in Houston, Texas on May 26, 1987 using standard chain-of-custody procedures.

2.3.2 Field Observations

The following text summarizes the more significant aspects of the field observations.

Soils

Soil descriptions are presented on the boring logs in Appendix D. Contamination in the field was determined by one or a combination of visual stains or coatings on soil, odor, or relatively high HNU values as compared to the rest of the soil in the boring. These observations are presented on the boring logs with HNU values on Table 2-5.

Based upon laboratory analysis and relative HNU readings, the soils obtained from borings MW-2 were contaminated from near the surface to the coarse clastic zone. The soils from MW-3 were contaminated near the surface and in the coarse clastic zone. Soils from boring MW-1 were contaminated in the coarse clastic zone only. Elevated HNU readings were obtained for soil samples obtained in the coarse clastic zone in borings MW-4 and MW-5.

However, concentrations of organics from these zones were below detection limits in subsequent laboratory analysis.

The heaviest contamination consisted of oily coatings (Figure 2-4) and strong odors in the soils from the north end of the site. The samples from the center and south end of the site were less contaminated as noted by some dark stains and odor. In general, within the coarse clastic sand and gravel zone, contamination was heaviest near the bottom and slightly less contaminated near the top of the water table.

Ground Water

During well development and water sampling, the ground water visually appeared fairly clean without evidence of contamination in MW-5 and MW-4 at the south end and center of the site, respectively. However, it did have an odor. Water from the wells in the north contained visually recognizable contamination with a strong odor (Figures 2-6 and 2-7). Contamination was least in MW-1, moderate in MW-2, and extremely noticeable in MW-3.

Sump Pits

Water collected from the four sump pits located on the fifth level of the Phase I parking garage appeared clean with no odor. Field observations of pH, temperature, and specific conductivity appear in Table 2-3.

Treatment System

Water collected from the treatment system on the first level of the Phase I parking garage appeared to be clean and have no odor. Field observations of pH, temperature, and specific conductivity appear in Table 2-3.

2.3.3 Laboratory Analysis

Laboratory analysis was performed by Southern Petroleum Laboratories, Inc. in Houston, Texas. Their data sheets are located in Appendices F & G and the data for soils and water are discussed in the following sections.

Soil Samples

The soils were analyzed for total inorganic constituents and the elevated concentrations for chromium, mercury, and lead appear to be similar for all soil samples tested. There are no regulatory limits for these inorganic constituents except as applied to EP Toxicity tests. These tests are performed on leachate from the

soil and were not performed for this project. These data are presented in Table 2-6 and shown in the the contour and three dimensional diagram in Appendix C.

Several organic constituents were detected in the borings on the north end of the site. None were detected above detection limits from the center or south end of the site. The highest concentrations appear to be from MW-2 near the surface with slightly lower concentrations at depth. MW-3 is more contaminated at depth than near the surface, and MW-1 is the least contaminated of the three well borings although it contains a wider array of constituents because of its lower detection limits. These are shown in Table 2-6. Contour maps and 3-dimensional diagrams of some metals and organic constituents are presented in Appendix C.

Ground Water Samples

The ground water samples analyzed from wells MW-1, MW-2 and MW-3 contain coal tar constituents. Significant concentrations of phenolics, manganese, phosphorus, sulfates, and chlorides were found in all wells. These results are presented in Table 2-7 and SPL analysis data sheets are presented in Appendix G.

Analysis for volatile organics and priority pollutants are presented in Table 2-7 and were detected at significant levels in MW-1, 2, and 3. For reference purposes, City of Austin discharge standards and safe drinking water limits are presented on Table 2-7.

Ground water samples from MW-1, 2, and 3 were also analyzed by capillary gas chromatography to determine the specific carbon chain constituents of the hydrocarbons present in the ground water. The results of this analysis indicate the predominant carbon chain contributions to be from C-12 and 13 in MW-1; C-11, 12, 13 in MW-2, and C-9, 10, 11, 12 in MW-3. These results and the high concentrations of benzene, toluene, and ethylbenzene may indicate the presence of an offsite gasoline or diesel source north of the Phase II site. Although benzene, toluene, and ethylbenzene are associated with coal tar, lower concentrations would be expected considering that these lighter organic compounds had 60 years or longer to volatilize. The predominant carbon chain hydrocarbons remaining after that period of time should be in the C-16 or greater fraction since the lower fractions would also have volatilized. These data are presented in Tables 2-7 and 2-8.

Treatment System Samples

The laboratory analysis of the effluent from the treatment system indicated two constituents above City of Austin Discharge limits. Chlorides and sulfates exceed the Austin discharge limits. The

detection limits for several constituents were greater than regulatory limits. A comparison of the influent and effluent also indicate that the treatment system is not effective in removing these constituents from the water. Other constituents detected that do not have established regulatory limits were boron, phosphorous, and orthophosphates. The results of the laboratory analysis are summarized in Table 2-7.

2.3.4 Geology

The Phase II site geology from the surface down consists of approximately two feet of fill material underlain by 33 to 38 feet of Quaternary age Colorado River alluvium on top of the Cretaceous age Eagle Ford Shale. In this area, the Austin Chalk is missing and presumably eroded by fluvial processes. A generalized stratigraphic section is presented on Figure 2-2. Details of the geology are presented in the following text and on the boring logs in Appendix D. Two cross sections are presented on Figures 2-8 and 2-9. Their lines of section are shown on the Site Plan (Figure 2-1).

The Phase II site is covered with 2 to 2.5 feet of fill material consisting primarily of a multi-colored silty clay to clayey silt with some gravel and pebble size aggregates. Fill up to ten or more feet thick may locally be present near old foundation structures. This fill is contaminated with coal tar constituents in the northern part of the site and inorganics all across the site.

Below the fill is 27 to 28 feet of Colorado River alluvium consisting of alternating reddish brown clayey silts to silty clays with occasional fine to medium sandy silt and sand laminae. The soils in this interval have oily stains and odors in MW-2 and MW-3. This zone is also contaminated with inorganics.

Underlying the clayey silt and silty clay zone is more Colorado River alluvium consisting of multi-colored coarse clastic zone consisting of poorly sorted medium sands to coarse gravels. The zone contains cobble size material on the south end of the site. The coarse clastic zone ranges from approximately 5.5 feet thick on the south end to 9 to 10 feet thick on the north end of the site. This zone is water saturated to approximately two to three feet above its base. The coarse clastic zone contamination includes oily stains and odor on the south end of the site to oily coatings and odor near the center of the site. The north end of the site contains a heavy oily ooze or sludge at the base of the coarse clastic zone, oily coatings higher up, and oily stains and odors above in the middle to upper parts of the zone. It is contaminated with organic constituents on the north end of the site.

Below the coarse clastic zone is a thin interval from the weathering of the Eagle Ford Shale and consists of yellowish brown moist clay approximately 0.5 foot thick across the site. This clay may act as the bottom bounding layer for the water in the coarse clastic zone above. No contamination was evident in this zone.

Underlying the clay zone is the Cretaceous age Eagle Ford Shale. It is a dark gray to black dry fissile shale unit. No contamination was evident in this zone.

2.3.5 Hydrology

The uppermost aquifer and the aquifer of concern at the Phase II site is located at the base of the Colorado River alluvium coarse clastic zone and is under water table conditions. During the field investigations, water in this aquifer ranged up to approximately three feet in thickness with the top of the water table approximately 35 to 36 feet below the surface. This level probably varies considerably due to seasonal variations in precipitation. In general, the local ground water flow tends to be towards Town Lake with a down stream component. These conditions give the ground water flow direction a north to south component and a west to east component. Local barriers to flow and lithologic heterogeneities may cause perturbations in the flow direction. The major receptor of the flow prior to Phase I construction was Town Lake.

Based on the ground water elevation data (Figure 2-10 and Table 2-3), geology, and the results of the chemical analysis of ground water (Table 2-7), it appears that the flow of ground water is entering the site from the north and northwest. The flow appears to split upon entering the north end of the site towards the east and west but predominantly to the east. The flow on the south end of the site may be towards the southeast although data is sparse. The major receptor to flow across the Phase II site appears to be the ground water collection system at the Phase I site, although a component of flow may be westward in the northern part of Phase II and still southerly in the south end of the site.

Evidence for an east-west trending barrier to flow separating the north end wells, MW-1 through MW-3, from the south end wells, MW-4 and MW-5, include the water quality data (Table 2-7) and Radian's depth to shale map (Figure 2-11). The cleaner water from MW-4 and MW-5 suggests a barrier. Local flow gradients should be towards Town Lake and in a down stream direction. Since water from wells MW-1 through MW-3 are significantly more contaminated than MW-4 and MW-5, it appears that the flow across the site from north to south is restricted. Radian's depth to

the shale map suggest a shale ridge trending east-west across the site separating the north end wells from those in the center and south.

Since the ground water in this area consists of two to three feet of water resting on the shale confining layer, ground water flow is probably influenced significantly by ridges and valleys in the topography of the shale confining layer, especially during times of low precipitation.

3.0 ASSESSMENT OF LINCOLN'S ACTIONS

There are five major actions performed by Lincoln Properties and their consultants during this project. These are the Phase II site evaluation, the Phase I ground water collection and treatment system, the Phase II coal tar pit closure, the Phase II closure plan, and their relation with regulatory agencies.

3.1 Phase II Site Evaluation

The Phase II site evaluation consists of that work predominantly performed by Radian and Maxim Engineers and includes the evaluation of the coal tar body and soils at the Phase II site and evaluation of ground water at both the Phase I and II sites. The areas of concern regarding the site evaluation are as follows:

1. The method of characterizing the site soils by visual and odor methods desired.
2. The method of collecting soil samples for analytical testing.
3. Not enough soil samples were analytically tested to characterize the site soils.
4. No complete ground water assessment was performed including ground water analysis.

The following portions of this section discuss these specific concerns.

As documented in Maxim Engineers letter dated March 5, 1987 to Lincoln Properties, only six soil samples were tested for coal tar constituents and one sample was tested for RCRA characteristics out of 123 borings completed at the Phase II site. The purpose of these borings was to identify any coal tar bodies. An additional 22 samples of soil were obtained from the coal tar body and were tested for reactivity to classify the waste for disposal purposes.

As documented in Radian's report of the Characterization of the 100 Congress Avenue Site and Waste Body, dated January, 1987, Maxim Engineers stated that continuous flight augers were utilized to drill the 123 borings and samples were obtained by soil cuttings utilizing a visual and odor description method to determine the soil contamination.

During this portion of the investigation, a more sophisticated method of analyzing for contaminants in the soil other than visual and odor should have been performed. Such methods should

have been a volatile organic analyzer or photo ionizer. Additionally, significantly more samples should have been chosen for chemical analysis. The sampling method by auger grab lends itself to cross contamination and biasing of the samples since the sample is disturbed and has to be transported to the surface by auger flights. This allows the soil to be in contact with possibly more or less contaminated soil along the bore hole walls. However, there is an indication that most of the more contaminated soils are located in the northern portion of the site which was confirmed by the five borings Law Engineering drilled at the site. However, the distribution of contaminated soil vertically is not supported by the sampling and analyses performed by Law and may be due to the sampling method used by Maxim.

Based on Maxim Engineers' March 5, 1987 letter previously mentioned, 5 samples were collected after the excavation of the coal tar body. The analyses of these five samples show contaminant concentrations somewhat lower than analytical results of the samples taken by Law Engineering in the northern portion of the site. Additionally, these analytical results do not correlate with Maxim's site characterization of the soil by visual and odor methods.

The issue of contamination in the ground water under the Phase II site has not been investigated thoroughly and thus there appears not to be a major concern. The only concern would seem to be the ground water entering the Phase I collection system. In the aforementioned Radian report, Maxim thought it was note worthy to point out that water was encountered just above the shale boundary and in all cases exhibited an odor. This would suggest some contamination of the ground water. However, no samples were taken and therefore the distribution of ground water contamination is not known. Even the degree of contamination cannot be determined from the samples taken from the collection sumps at the Phase I building as they would represent a diluted sample in one collection gallery that may have been filtered by the filter sand around the collection pipes.

Offsite migration of contaminated ground water has not been addressed sufficiently. Lincoln Properties in their October 7, 1985 letter to Fred Rogers of the Austin-Travis County Health Department, states that the hydrocarbon contaminated fluids exist below the coal tar pit and extend a block or more in some directions. Lincoln stated further that investigations are continuing to evaluate the situation. However, no additional reports evaluating offsite contamination and impact were supplied in the documentation nor were there concerns by the regulatory agencies regarding offsite migration of ground water.

3.2 Ground Water Treatment System

The ground water treatment system in the Phase I garage is discussed in two parts, collection and treatment. The effectiveness of the system was evaluated by considering its ability to treat all contaminants and to collect all contaminated fluids.

Based on our conclusions that contaminated ground water lies mainly in the northern part of the Phase II site, the system seems very effective in collecting most ground water in the northern portion of the site. However, there is a component of flow westward in the northern part of the Phase II site that would not be captured by the northern collection system. Ground water flow in the southern part of the Phase II site seems to be partly collected by the southern collection system. However, based on our analysis of ground water in that portion of the site, ground water is not contaminated with coal tar constituents.

The treatment part of the system is connected to the collection system which in addition to ground water collection in the alluvial soils also consists of slab underdrains at parking level five. These underdrains would also drain some ground water. The collection system empties into three sumps, numbers 1 and 4 in the north and number 2 in the south. The location of these sumps and the collection system which they drain are shown in Figure 2-5. Sump 3 located in the southwestern portion of Phase I, is connected to the sanitary sewer system and drains water from the health club area as well as a portion of the slab underdrain.

Sumps 1 and 4 are interconnected but only by a lift pump. Sump 4 primarily drains soil under the slab adjacent to the walls in the northern part of the site. Sump 1 collects all the ground water in the alluvial collection system in the northern part of the site. Sump 2 collects both ground water in the alluvium and a portion of the slab underdrain drainage in the southern portion of the site. The contents of sump 1 and 4 are pumped up to parking level one where the treatment system exists. Similarly, the contents of sump 2 in the southern part of the site are pumped to the treatment system.

During Law Engineering's sampling of these sumps, the chloride and sulfate exceeded City of Austin discharge limits. No volatile or semi-volatile organics were found except for xylene in sump 2.

Water samples were also taken after cartridge filtration just prior to carbon treatment and the effluent after carbon treatment. This analysis indicated that the total organic carbon was effectively treated but that sulfate and chlorides were virtually not effected and over City of Austin's discharge limits. It would not be expected that such a treatment system

limits. It would not be expected that such a treatment system would remove metals or sulfate.

The system has the capacity to handle the expected flows which generally do not exceed 20 gallons per minute. The system is rated at 200 gallons per minute which would result in a factor of safety of 10.

3.3 Coal Tar Pit Closure

The method of determining which soils are contaminated during the closure of the coal tar pit at the Phase II site was inaccurate and possibly conservative for the reasons previously discussed in section 3.1. Since the basis of the contaminant evaluation was on visual and odor methods more soils were removed than probably necessary. Additionally, soil with contaminant levels similar to the coal tar body that was removed are still present at the Phase II site. These soils are generally located just north of where the coal tar pit existed and in the shallow subsurface. Additionally, at the base of the alluvium in the northern portion of the site, soils approaching one tenth the contaminant level of coal tar still exist. The basis of these conclusions is a comparison of Law Engineering's soil analysis from the Law borings and the analytical results for the coal tar body (Maxim's Bore Hole No. 81) as presented in Table 2-2 of Radian's Characterization of 100 Congress Avenue Site and Waste Body Report, dated January, 1987.

3.4 Phase II Closure Plan

The closure plan proposed by Lincoln Properties and approved by the Texas Department of Health includes two major provisions:

1. Continued treatment of contaminated ground water through the existing treatment system and disposal into the storm sewer as permitted by the Austin-Travis County Health Department (ATCHD). Periodic review of this permit is required.
2. Removal of all contaminated soils from the site and proper disposal of the soils in an approved facility within a period of five years. This action will require further permits with the Texas Department of Health (TDH).

Based upon correspondence from ATCHD, the two permits discussed above are not dependent upon the other (See ATCHD Letter dated 3-19-87 signed by Fred Rogers). However, both ATCHD and TDH emphasize that removal of all coal tar contaminated soils from the site is needed and assumed. Furthermore, ATCHD and TDH require a memorandum to the Deed Records of Austin County which in effect binds any new property owner or partner to the Closure Plan approved by TDH.

It is clear, therefore, that the removal of all contaminated soils from the Phase II site is desired by the ATCHD and TDH within the five year period which ends in 1991.

The Phase II Closure Plan reviewed by TDH is considered to be conceptual at best. Further, the entire premise of the plan is predicated on construction of the Phase II building. There is no contingency plan if construction of the building is uneconomical. Furthermore, we have not seen an estimate of cost for closure of the site.

The closure plan does not include any QA/QC plan for identification of contaminated soil in order to differentiate clean soil from contaminated soil. In light of the findings of our field program, considerable amounts of contaminated soil are still present at the site in the vicinity of the old pit where removal has taken place. Therefore, there is some question as to the validity of previous identification procedures.

The closure plan does not address cutoff collection and/or treatment of contaminated ground water from on or offsite sources during cleanup operations.

Ground water flowing from the north and west of the site and from inside the site must be addressed in the closure plan. Any plan must also address hydrostatic uplift relief on the floor slab and preferably how to separate contaminated and clean water.

The closure plan does not specify an agreement with TDH and Lincoln on what is "clean". It is not clear whether clean is background levels or what constituents will govern the clean closure. Specified cleanup limits agreed to by Lincoln and TDH must be established. The handling of contaminated ground water during cleanup must be specified. The characteristics of the contaminated water and disposal methods acceptable to TDH must be clearly established.

In summary, the existing closure plan is contingent upon construction of the Phase II building. It is considered to be conceptual and not sufficiently detailed to evaluate. Therefore, the closure plan in its present form, is considered inadequate for Metropolitan to access the risk involved.

We have performed a rough cost evaluation of the costs of closure of the site assuming that the Phase II building construction does not take place. The closure plan includes the following:

1. Entire removal of contaminated soil on site (16,000 cy) - approximately 50 percent of soils present.
2. Disposal of the soils as Class I waste.

3. Construction of a tiedback soldier pier wall to support the excavation.
4. Treatment/Disposal of contaminated ground water in the excavation.
5. Construction of a synthetic and clay lined cutoff wall to restrict offsite ground water flow.
6. Backfilling the excavation with clean low permeability soil from offsite.

The total cost of this option in our opinion would be approximately \$3,000,000. The costs could vary plus or minus 20 percent. If the soils at the site are later classified as hazardous waste, the costs of disposal would increase to approximately \$5 million. If cleanup is conducted during construction of the Phase II building, the costs would be less.

3.5 Relation with Regulatory Agencies

Lincoln Properties has documented contact with regulatory agencies throughout the project. Contact with the proper agencies to determine jurisdiction has been made. It is clear that the three agencies involved most heavily are the Texas Water Commission (TWC), the Texas Department of Health (TDH) and the Austin-Travis County Health Departments (ATCHD).

The Texas Water Commission has jurisdiction over any area concerning ground water contamination, disposal or assessments. To date, they have chosen to allow TDH to review and permit any closure plans. TDH also has jurisdiction over a permit to dispose of contaminated solid waste. ATCHD is involved as the permitting agency for discharge of treated ground water to storm sewers.

It is not documented at this time what reports have been made available to the regulatory agencies. Periodic reports are provided to ATCHD on an indicator parameter (TOC) plus some additional parameters. Further, the requested legal opinion of compliance has not been received to date. Therefore, it is difficult to assess the relationship with the agencies with the exception of ATCHD, which we believe to be adequate.

Based upon the data we reviewed prior to the March 23, 1987 meeting and assuming that the same data was made available to TDH, TWC and EPA, some misconceptions as to the actual conditions could develop.

First, it was indicated in the referenced meeting that the "worst" of the contaminated soil and coal tar (the old tar pit)

had been removed and that very little additional contaminated soil (with the exception of the soil/water at the shale/sand interface) was left in place. Subsequent investigations by Law found considerable quantities of highly contaminated soil in the northern 1/3 to 1/2 of the site.

Second, ground water discussions had been largely omitted. Hydrogeologic evaluations including flow direction, rate of flow, offsite potential for migration and potential receptors, which are basic requirements on any assessment were not sufficiently addressed. No ground water quality data had been obtained at the time of our meeting of March 23, 1987. Therefore, no data concerning water quality was available other than an initial grab sample obtained from inflow into the Phase I excavation. This sample indicated high concentrations of coal tar constituents.

It is also unclear as to the purpose or reason for installation of one monitoring well at the site. The results of sampling of that well have not been received.

As stated previously, significant levels of contamination of ground water by hazardous constituents in the northern portion of the site were detected in our field program. We are not aware that any reports indicating such contaminants have been presented to TDH, ATCHD or TWC for their evaluation and comment. The level of contamination in the ground water by phenols, PAH's, benzene, and ethylbenzene have not been reported to TWC and their response to such levels is then unknown.

The general procedure to follow in cases such as this is to present all findings to the regulatory agency and then provide conclusions and recommended actions. We cannot ascertain if all findings have been made available to TWC and TDH. It appears that data has been selectively provided to the regulatory agencies. If this is the case, the agencies could be under similar misconceptions as we were, prior to accomplishing our field program. As a result, past permits issued may be reviewed in light of the new data.

3.6 Liability and Risk

With the present water treatment system and the presence of contaminated soil and ground water onsite, it is our opinion that there is little risk of offsite migration in the short term. The treatment system appears to be collecting most contaminated ground water from the Phase II site and from the north and thus the migration of contaminated ground water to Town Lake is not likely.

It should be clear, however, that the contaminated soils at the site, although not considered hazardous by TDH, are likely to be reclassified in the future based on the concentrations of

benzene, polyaromatic hydrocarbon (PAH) and phenols detected in the samples obtained in our investigation. With the concentrations of PAH's and benzene in the ground water it may also be classified as hazardous.

The ground water handling system at this site consists of PVC collector pipes surrounded by sand filter material which is referred to as the collection system. The treatment system consists of various filters and processes to treat or remove the organic constituents.

The existing ground water treatment system appears to be properly designed to remove the coal tar contaminated ground water collected. It has sufficient capacity for the historic flows. However, samples obtained by Law Engineering found sulfate and chloride values which exceed City of Austin discharge limits. However, none of the limits established by the City of Austin for the special industrial discharge permit are being exceeded.

The closure plan approved by TDH assumes removal of the contaminated soil. Any new property owner on the project will accept ultimate responsibility for the contaminated soils and water. If the soils are removed subsequent to ownership, disposed in a landfill as either hazardous or special waste, the ownership of the soils remains with the property owner. If at a later date the landfill begins to leak and the landfill operator cannot financially accept the cost of a cleanup, the owner of the contaminated materials becomes responsible for the cleanup or his fair share of such costs. In actuality, disposal of contaminated soils from your property only means that the landfill operation is storing it for the owner in a controlled and licensed environment.

Once the contaminated soils and ground water are removed from the site and either the Phase II construction is completed or the site is backfilled with clean soil, contaminated ground water (although not as contaminated) will continue to flow into the collection system. The long term cost of ground water treatment and the inherent risk discussed above for that treatment system will remain even after a proper closure.

4.0 OTHER CLOSURE METHODS

4.1 Complete Closure

In our opinion, complete closure of the site would be very difficult if not impossible to accomplish. Due to the presence of contaminated ground water offsite, operation of a treatment system with a discharge permit will continue for the foreseeable future. Whether the Phase II office building is constructed or not, it is clearly the intent of the regulatory agency that contaminated soil be removed from the site. Toward this end therefore, a total complete closure is not considered feasible. The best that can be accomplished at the site is removal of the contaminated soils and water and limited flow of offsite water as discussed above in Section 3.4.

4.2 Partial Closure

Partial closure methods consist of those which leave the contaminated soils and ground water in place. Partial closure methods considered include construction of a soil bentonite cutoff on three sides of the Phase II site with various actions inside the area to remove, flush or biological degrade contaminants in the soil and ground water. All would require the continued operation of the ground water collection and treatment system and the maintenance of an industrial waste water permit. None could be completed within the five year period established by the regulatory agencies. These procedures also clearly do not meet the intent of the understanding between Lincoln and TDH and thus would require a total resubmittal of the permit application with appropriate technical studies, demonstration projects and reports.

Realistically, in our opinion, none of the insitu treatment methods would be feasible at this site because of the technical unknowns, the regulatory posture and the time frame required.

Furthermore, construction of the soil bentonite cutoff wall would not serve any purpose other than minimizing flow to the water treatment system. Most of the flow to the water treatment system is from the north and thus a soil bentonite cutoff wall would not prove effective.

Therefore, in our opinion, there is no feasible partial closure plan which is feasible. Lincoln basically has a choice of moving the contaminated soils to an offsite source and being responsible for the material or keeping them in place and being responsible for them. Both options require continued collection and discharge of ground water.

5.0 CONCLUSIONS

The conclusions presented in this section address soil and water, treatment system, closure of the Phase II site and short and long term liabilities.

5.1 Soil and Water

- . Soil is contaminated with coal tar constituents mainly in the north part of the Phase II site and under West 2nd street to the north.
- . No coal tar constituents were found in soils in the southern portion of the site. However, previous borings by Maxim suggest some contamination may be present.
- . The soils have been classified by Texas Department of Health as nonhazardous based on RCRA characteristics and can be disposed of in a Class I nonhazardous landfill even though priority pollutants and 40CFR261 Appendix VIII pollutants are present. The Health Departments reason for this classification is that coal tar is not a listed hazardous waste.
- . The ground water is contaminated generally in the northern portion of the site with coal tar constituents. Benzene, toluene, xylene, and ethylbenzene are also present.
- . A portion of the high levels of benzene, toluene, and ethylbenzene could be attributed to contamination from upgradient sources flowing into the Phase II site although these are also constituents of coal tar.
- . Ground water flow through the Phase II site is bi-directional and controlled mainly by the topography of the top of the shale below the alluvium.
- . A component of the ground water flow in the northern part of Phase II may be in a westward direction. However, a significant amount of flow would be towards the Phase I building collection system.
- . Ground water flow in the southern part of the site is generally south south-eastward with a component of the flow being collected by the Phase I ground water collection system.
- . Offsite migration of ground water contaminated with coal tar constituents probably occurred in the past prior to the Phase I building and a component of that is most likely still migrating offsite even with the Phase I building present.

- . The only potential receptor for any contaminated ground water flow offsite in the past or in the future appears to be Town Lake to the south as no ground water users are present between the Phase I or II sites and Town Lake.
- . No regulatory agency has addressed contamination of ground water or acknowledged receipt of ground water analysis at the Phase II site other than analysis from the initial black fluid which flowed into the Phase I excavation and influent into the Phase I treatment system.

5.2 Treatment System

- . The present capacity of the treatment system is adequate to handle expected ground water flow into the Phase I building. If the Phase II project is built, the system should be able to handle flow from a Phase II building collection system.
- . The treatment system is not designed to handle metals or contaminants consisting of chloride and sulfates. These are not addressed in the City of Austin discharge limits, however.
- . The City of Austin has not addressed metals in their discharge permit but could in the future. The level of chlorides and sulfates have exceeded discharge limits set by the City of Austin.
- . Water quality from Radian's treatment system has met City of Austin's discharge limits for those constituents analyzed routinely.

5.3 Closure Plans

The closure plan prepared by Lincoln is insufficiently detailed to draw final conclusions and a detailed plan should be prepared. TDH also has the authority to review and approve the plans prior to excavation. The basic conclusions concerning closure are as follows:

- . Costs of closure will range from \$3 to \$5 million depending upon the final classification and quantity of waste to be removed and whether Phase II is constructed or not.
- . The conceptual plan prepared by Lincoln is considered to be the only feasible alternative at this time. It is considered to be a "clean" closure.
- . The plan will require continual treatment of offsite contaminated ground water for the foreseeable future. Periodic permit approval or review will also be required.

5.4 Liabilities

If no action is taken in the short term, it is our opinion that the risk of offsite migration of contaminants causing an impact on the environment and health and safety of the public is small.

It is possible that the contaminated soils and ground water at the site may be classified as hazardous as new standards for certain constituents are established and test procedures change. The result of such changes would increase the cost for closure and possibly a change in the attitude of the regulatory agencies.

Therefore, it is important that the contaminated soils and ground water be removed from the site as soon as practical. However, you should be aware that contaminated ground water from offsite will continue to be collected and require treatment. If the Phase II building is constructed, the ground water collected could be treated by the Phase I system and costs for treatment should roughly double. If the treatment system needs to be expanded to handle metals and sulfates, the system costs could also double.

There are other intangible reasons why the liability is higher as long as the material is on site. The site is in downtown Austin and competitors, environmental activists, and politicians may refer to it as a site contaminated with hazardous constituents. These claims may be unrealistic and no matter how sincere an effort is made by the owner to dispel these notions, the fact is that the site is contaminated and considerable amounts of coal tar constituents are in place. We cannot predict what liabilities may result from these intangibles, but they should be considered.

It is our opinion that Lincoln and their consultant Radian have established good relationships with the community, the local regulatory agencies, and the state regulatory agencies. There appears to be a level of trust which is very important in these situations. The general gist of the correspondence is that Lincoln did not create the problem and is now spending a lot of money to try and mitigate the situation. If Lincoln can maintain this posture, and not become identified with the problem, then the regulatory agencies will generally allow them to address closure on an orderly basis with the costs spread over a period of time. In fact, at this time, Lincoln is protecting Town Lake by collecting contaminated ground water.

In summary, the following points on liability should be understood:

- . The property owner or partner owns the contaminated waste whether on or offsite and is therefore responsible for it.

- . The longer the contaminated soils remain on site, the higher the risk to the owner. Therefore, it is important to remove the contaminated soils as soon as possible.
- . Treatment of contaminated ground water from offsite will be required for the long term even after removal of onsite contaminated materials. The cost of treatment could double when Phase II is built and that could even double if metals and sulfate are treated.

There are significant liabilities and risks associated with this site unless specific actions are undertaken in the near future to minimize and clarify the risks. These are as follows:

- . Provide data to and discuss with appropriate regulatory agencies the level and distribution of ground water contamination and levels of metals and sulfates in the treatment system effluent.
- . Perform an environmental and health and safety risk assessment to determine the effects of contaminated ground water moving offsite.
- . Develop a detailed closure plan for the Phase II site, obtain regulatory approval and close out the site.

APPENDIX A

FIGURES

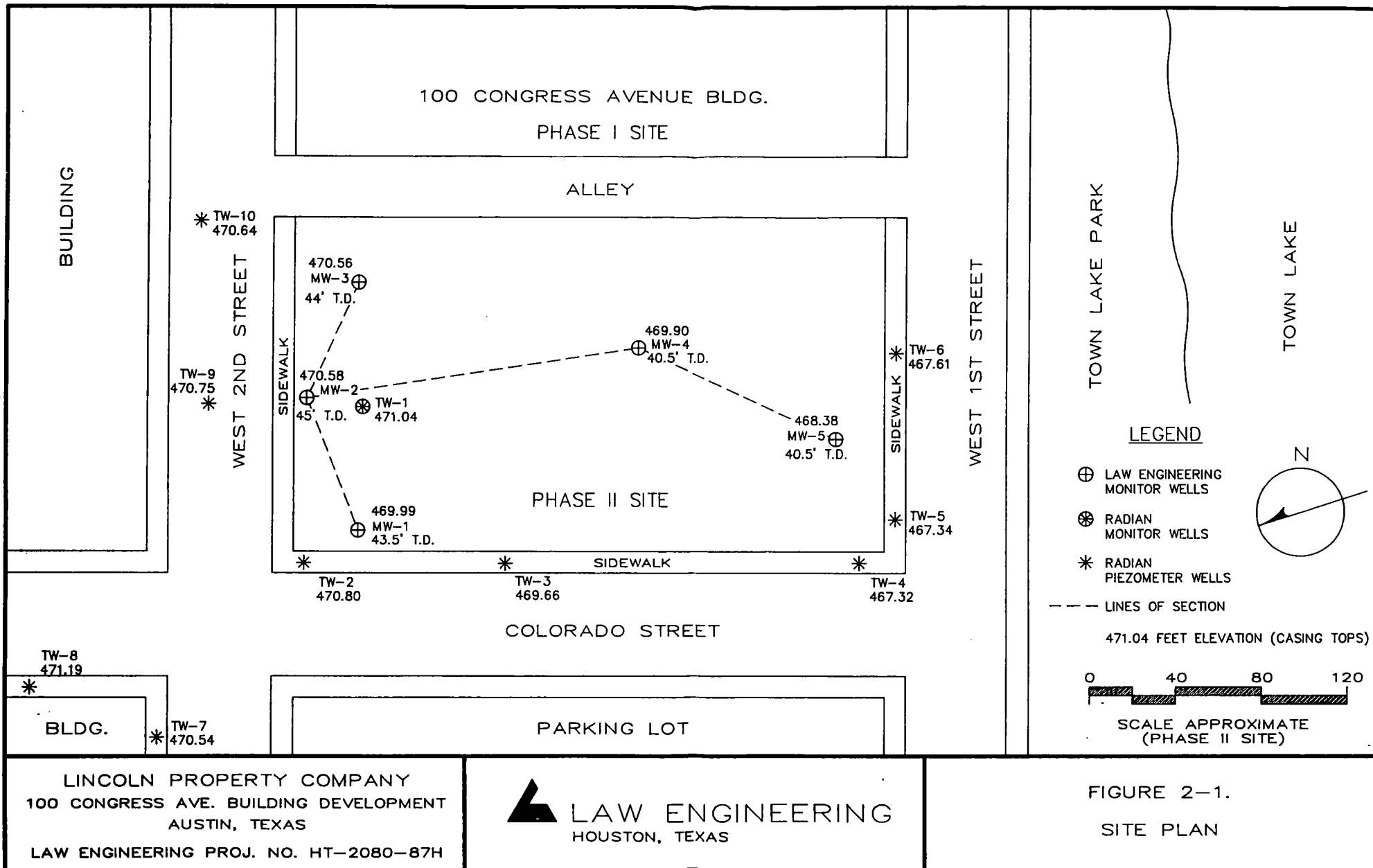


FIGURE 2-2

GENERALIZED STRATIGRAPHIC COLUMN

ERA	SYSTEM	FORMATION	ROCK UNIT	DESCRIPTION	APPROX. DEPTHS
CENOZOIC	QUATERNARY		COLORADO RIVER ALLUVIUM	ALTERNATING CLAYEY SILTS & SILTY CLAYS	2'
				COARSE CLASTICS (MEDIUM SANDS TO COARSE GRAVEL & COBBLES)	
				CLAY	
MESOZOIC	CRETACEOUS	EAGLE FORD	SHALE	FISSILE SHALE	39'
					39.5'



FIGURE NO. 2-3 Monitor Well Surface Installation

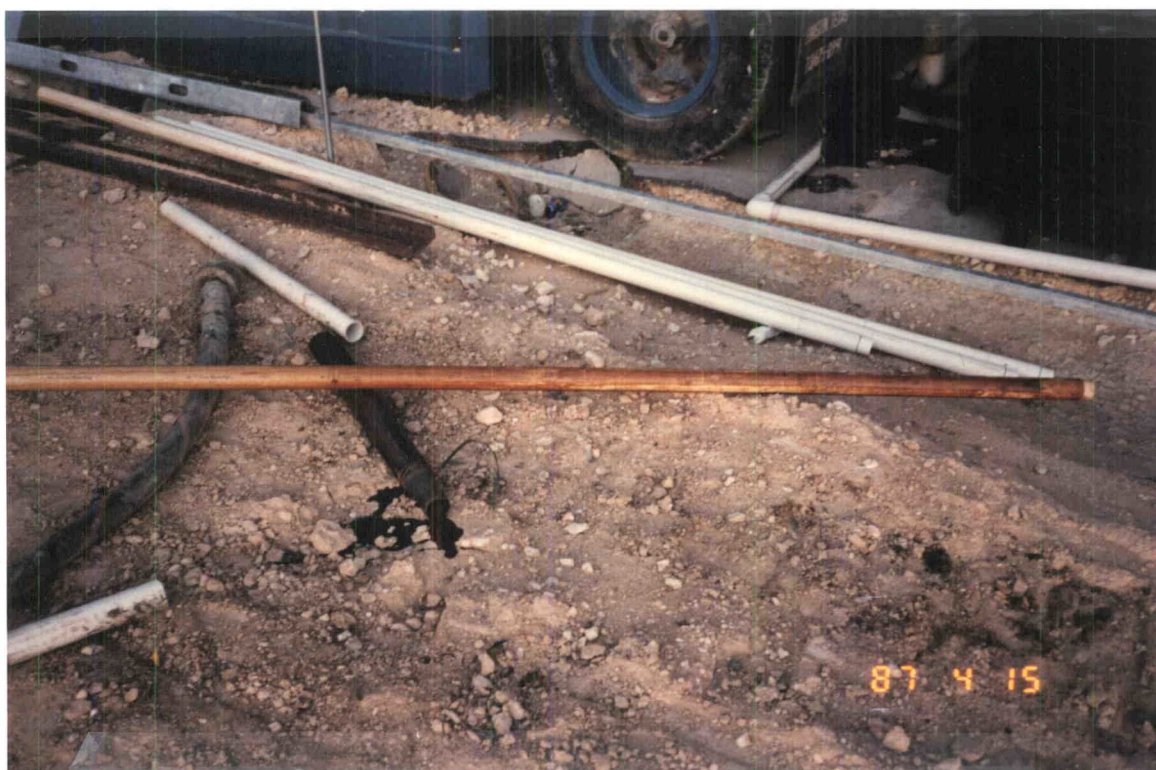
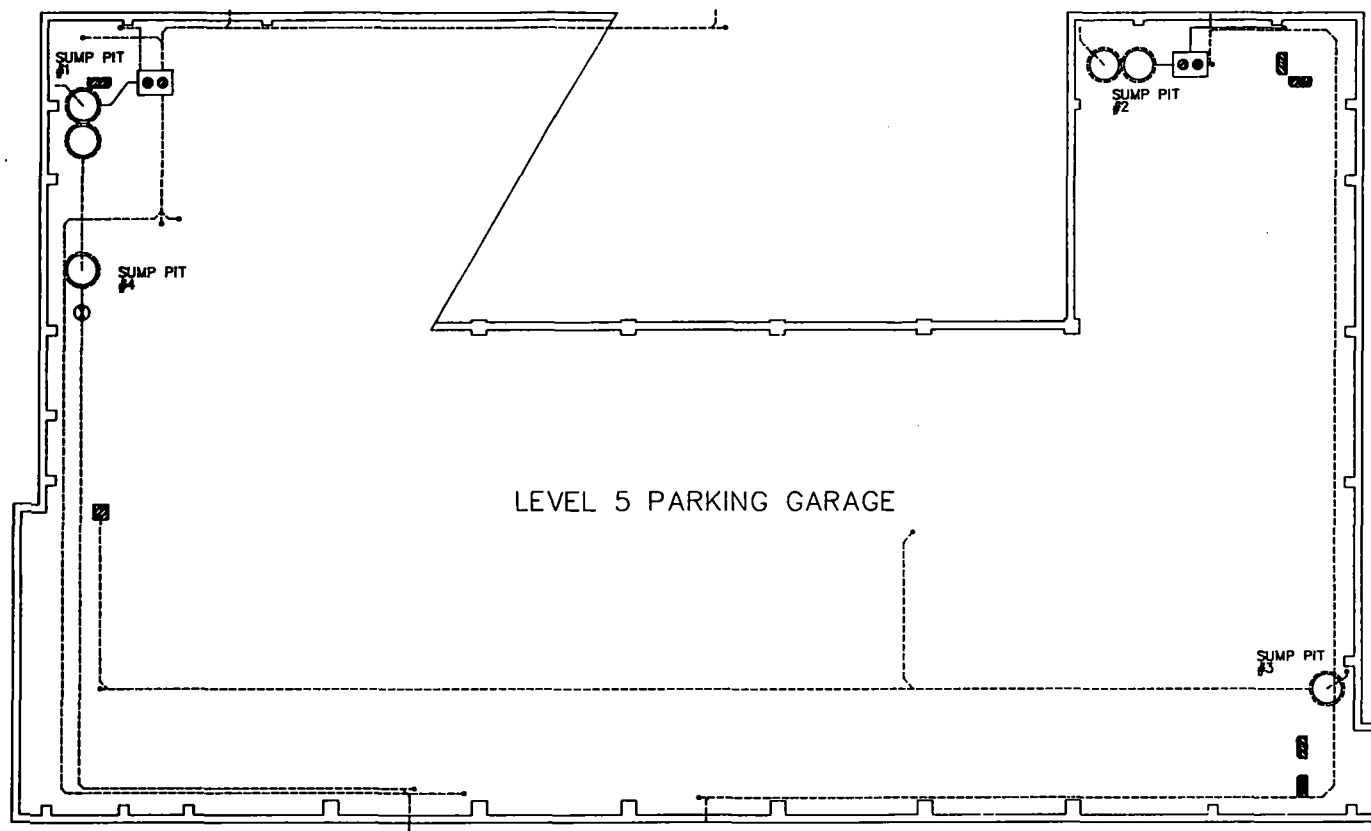
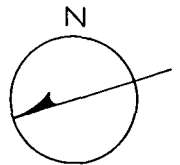


FIGURE NO. 2-4 Ground Water and Soils Contamination MW-3
(4/15/87)

NOTE: Black oily liquid exiting split spoon sampler and stained PVC slotted casing after exposure to ground water for approximately 20 minutes.



LEVEL 5 PARKING GARAGE



LINCOLN PROPERTY COMPANY
100 CONGRESS AVE. BUILDING DEVELOPMENT
AUSTIN, TEXAS
LAW ENGINEERING PROJ. NO. HT-2080-87H

 **LAW ENGINEERING**
HOUSTON, TEXAS

FIGURE 2-5
PHASE 1
SUMP LOCATION PLAN



FIGURE 2-6 Development water from MW-2 (5/25/87)

NOTE: Bailer is made of white teflon.

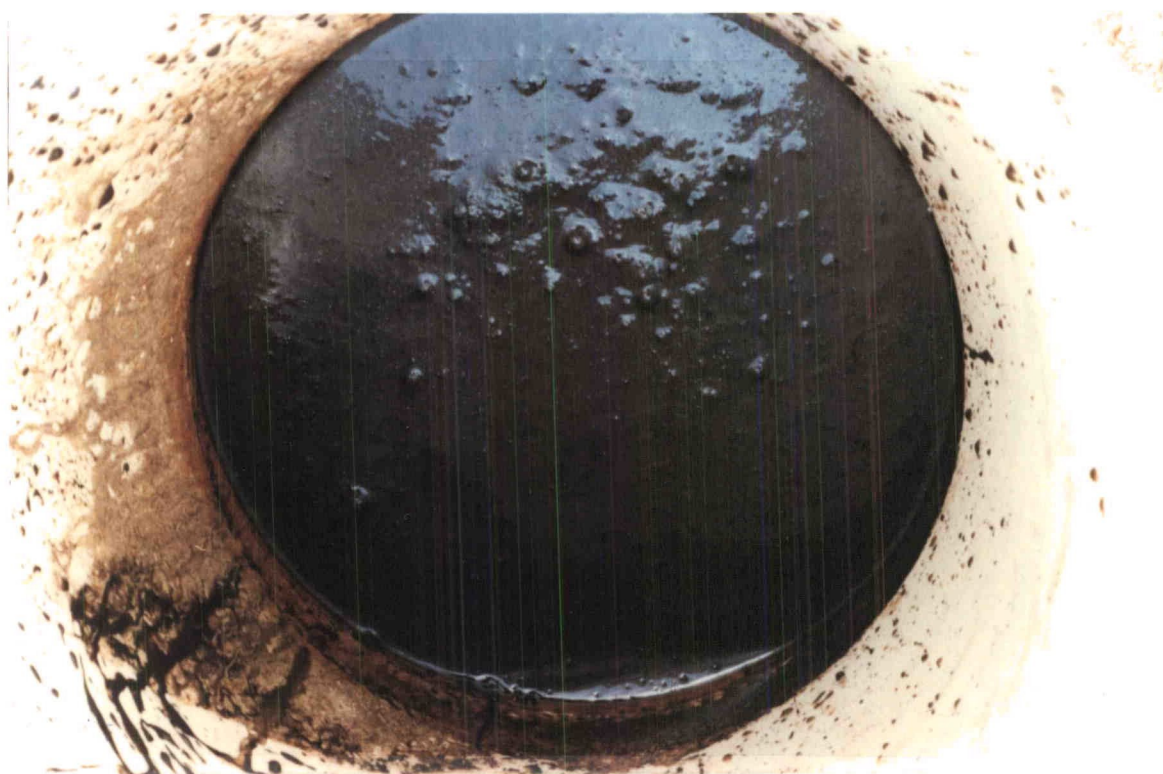
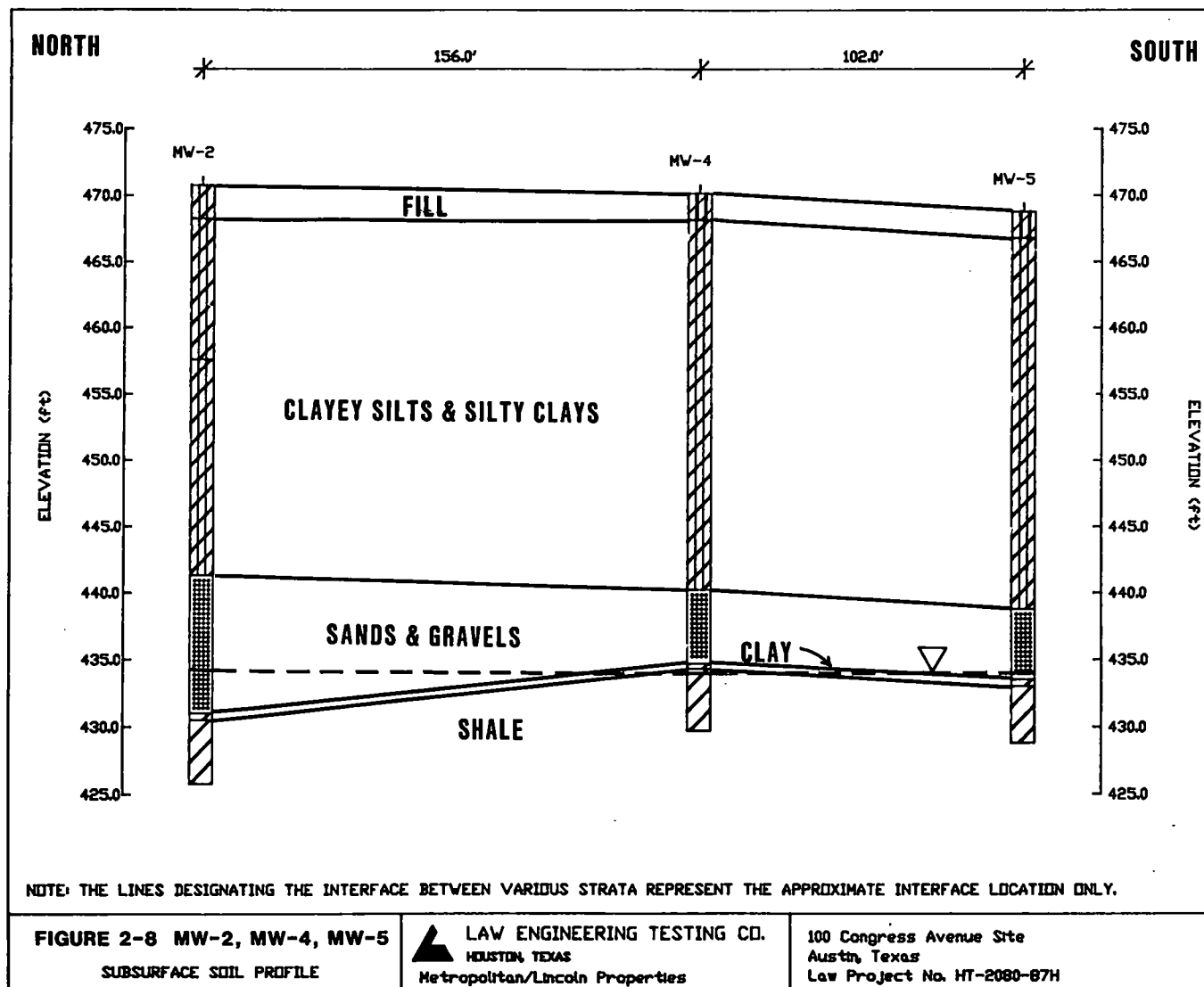
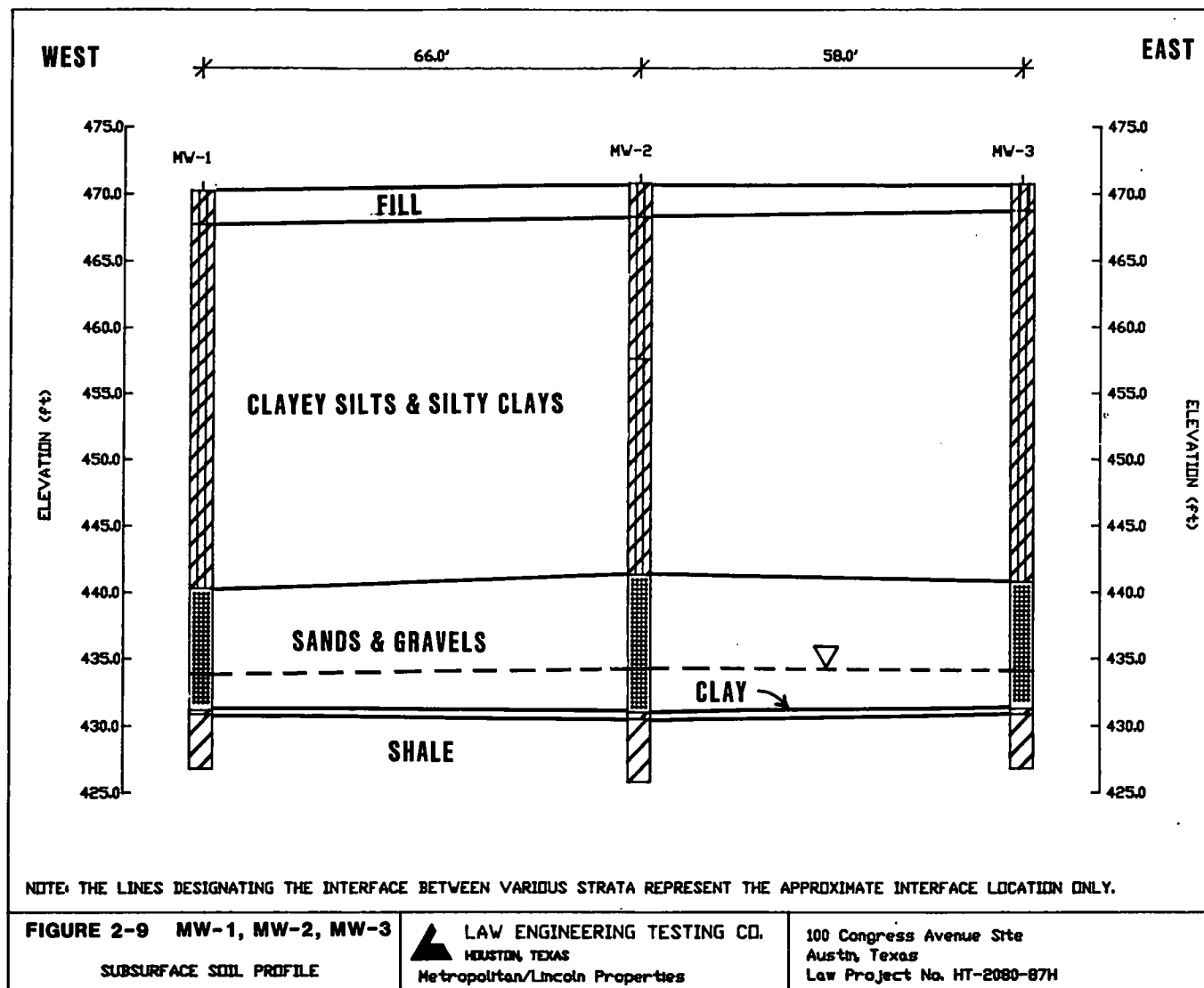
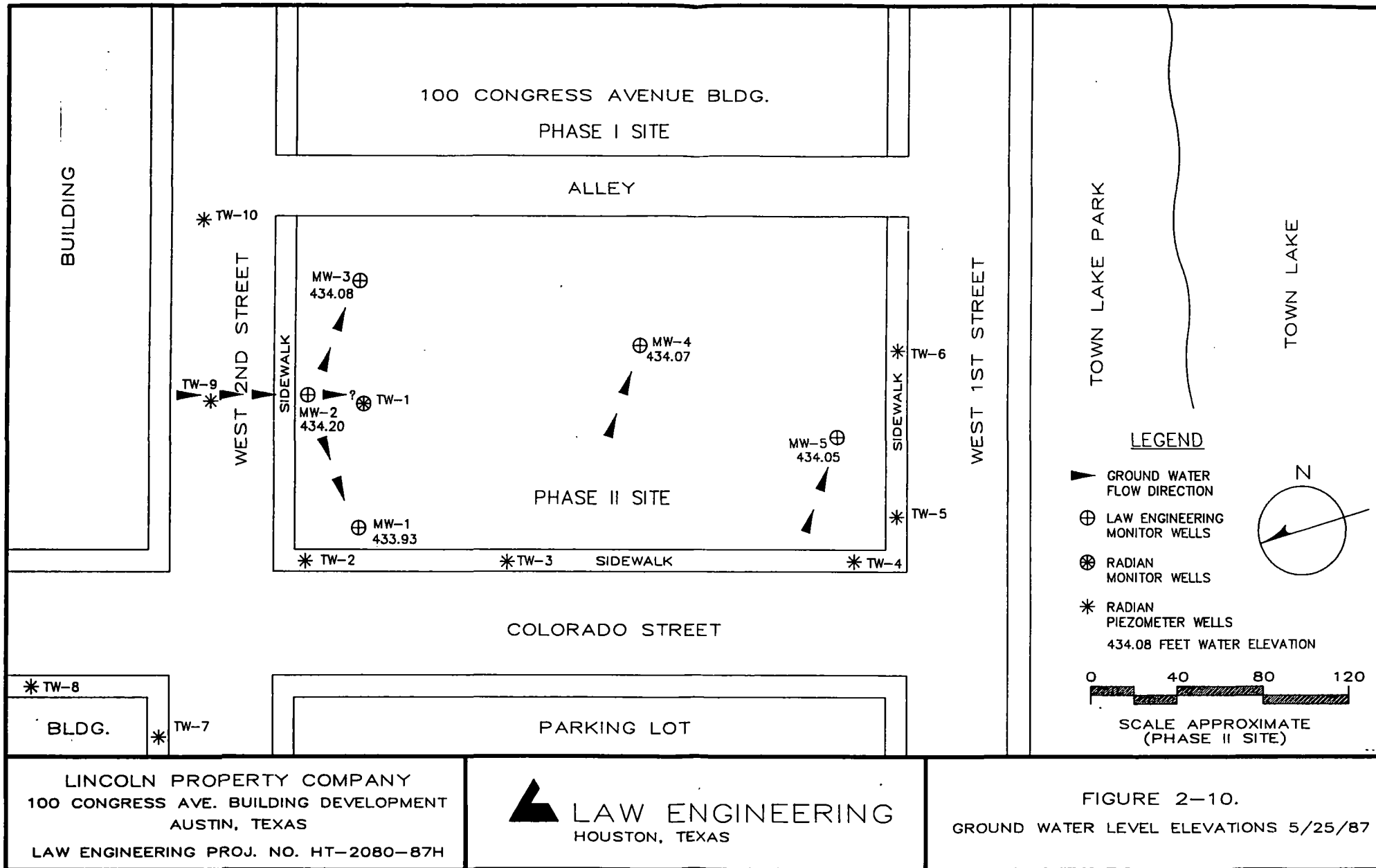


FIGURE NO. 2-7 Development water from MW-3 (5/25/87)

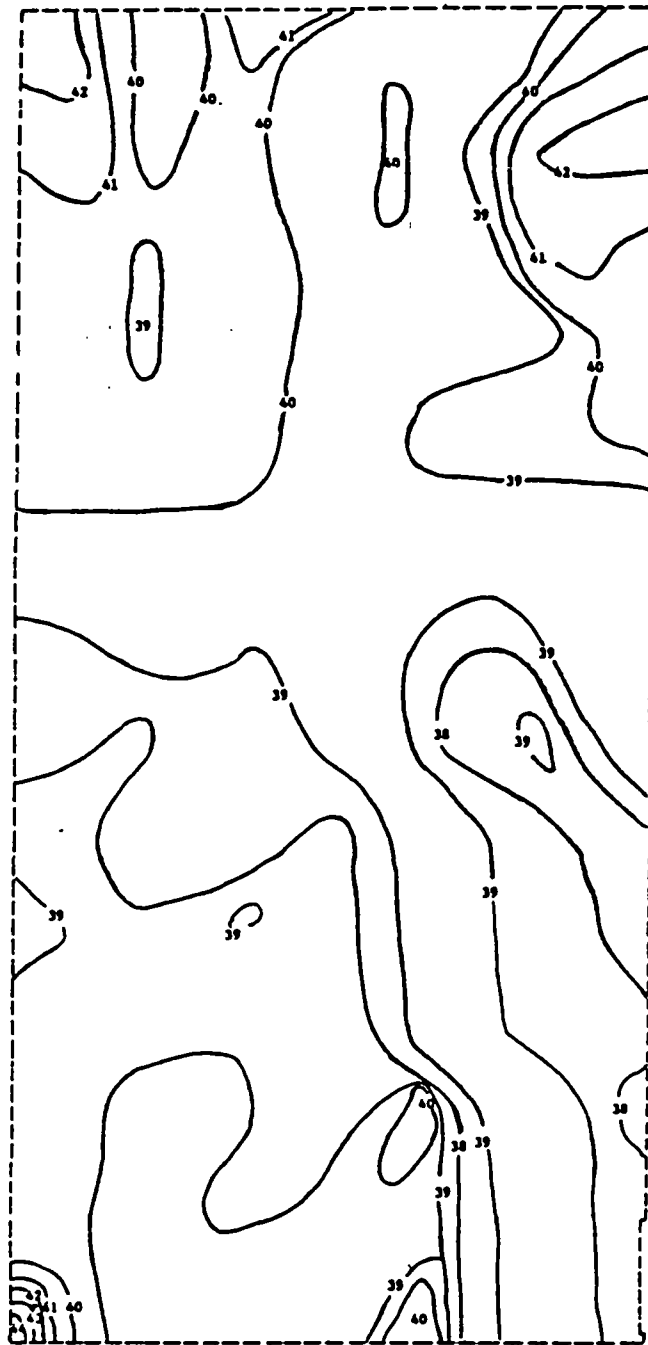






WEST 2nd STREET

COLORADO STREET



100 CONGRESS
PHASE I



WEST 1st STREET

RADIAN'S DEPTH TO SHALE MAP

(numbers delineate distance from surface to shale boundary)

Figure 2-11

(from Attachment 1 of Radian's Report #229-068-04-00, January, 1987)

APPENDIX B

TABLES

TABLE 2-1

100 CONGRESS DOCUMENTATION LIST

ISSUE DATE	RECEIVE DATE	FROM	TO	SUBJECT
12-Feb-87	24-Apr-87	Brandt Engineering	LPC	Price to connect temporary frac tank to sewer
13-Feb-87	24-Apr-87	Brandt Engineering	LPC	Notification of installation of discharge line from temporary frac tank to sewer
23-Sep-85	24-Apr-87	City of Austin	LPC	Denial of request to discharge drainage fluids into sanitary system
15-Oct-86	24-Apr-87	City of Austin	LPC	Response to September 30 letter for request of discharge into storm sewer
04-Nov-86	24-Apr-87	City of Austin	LPC	Conditions for issuance of Storm Sewer Permit for groundwater discharge
12-Jan-87	24-Apr-87	City of Austin	City of Austin	Renewal of waste discharge permit to be signed
12-Jan-87	24-Apr-87	City of Austin	LPC	Renewal of waste discharge permit
06-Mar-87	24-Apr-87	City of Austin	Jenkins & Gilchrist	Discussion of Health Department's issuance of a discharge permit
23-May-86	24-Apr-87	City/Water Dept.	LPC	City of Austin Special and Conditional Industrial Waste discharge permit
17-Oct-85	24-Apr-87	County Health Dept.	LPC	Explanation that city is coordinating discharge with Texas Water Commission
10-Mar-86	24-Apr-87	County Health Dept.	LPC	Discussion of Treatment System including imbibitor beads
03-Oct-86	24-Apr-87	County Health Dept.	LPC	Denial of permit to use storm sewer
23-Jan-87	03-Mar-87	County Health Dept.	LPC	Acknowledgement of receipt of fee and granting of permit for storm sewer
30-Jan-87	03-Mar-87	County Health Dept.	LPC	Affirmation that county health department accepts plans for treatment facility
02-Feb-87	03-Mar-87	County Health Dept.	LPC	Acknowledgement that county health dept. grants sewer discharge permit
10-Feb-87	24-Apr-87	County Health Dept.	LPC	Approval for the commencement of discharge into storm sewer
09-Mar-87	24-Apr-87	County Health Dept.	LPC	Clarification of "special permit review", and mention of deed record of memorandum for Phase II
19-Mar-87	24-Apr-87	County Health Dept.	LPC	Clarification of "special permit review", and mention of deed record of memorandum for Phase II
16-Jul-86	24-Apr-87	Ecology and Envir.	EPA	General memo to explain situation at site
08-Apr-86	24-Apr-87	Engineering & Env.	LPC	Ground water seepage analysis/rate of seepage
01-Dec-86	13-Feb-87	Environmental Techn.	LPC	Hazardous Waste Abatement Site Log
24-Dec-86	13-Feb-87	Environmental Techn.	LPC	Final Report, Waste Site Excavation Project
28-Aug-86	24-Apr-87	EPA	LPC	Memorandum site inspection report
01-Apr-86	24-Apr-87	Espey, Huston, Inc.	LPC	Ground-Water Seepage Analysis
02-Feb-87	03-Mar-87	Jenkins & Gilchrist	City of Austin	Summary of meeting which outlined requirements of discharge into sewer system
12-Feb-87	24-Apr-87	Jenkins & Gilchrist	LPC	Letters concerning sewer industrial waste discharge permit
06-Mar-87	24-Apr-87	Jenkins & Gilchrist	LPC	Draft of proposed letter from County Health Dept.
27-Feb-87	24-Apr-87	LPC	Bruce Heiberg	Radian's February 23 responses to Bruce's concerns about water treatment system
24-Oct-86	24-Apr-87	LPC	City Manager	Request for discharge into sewer, increase in levels of discharge, extension of bldg permit
18-Mar-86	24-Apr-87	LPC	City of Austin	Request for acceptance of contaminated water into wastewater or storm system
20-Mar-86	24-Apr-87	LPC	City of Austin	Description of how LPC intends to address the ongoing maintenance of the proposed system
11-Apr-86	24-Apr-87	LPC	City of Austin	Materials and information requested by City during meeting of March 28, 1986
11-Apr-86	24-Apr-87	LPC	City of Austin	Signed application for Industrial Waste Permit
09-May-86	24-Apr-87	LPC	City of Austin	Summary of Site discussions
19-Sep-86	24-Apr-87	LPC	City of Austin	Request for extension of reporting date for the first three month period of effluent discharges
30-Oct-86	24-Apr-87	LPC	City of Austin	Request of extension to discharge treated groundwater
11-Apr-86	24-Apr-87	LPC	City/Water Dept.	Signed application for industrial waste permit
26-Jan-87	24-Apr-87	LPC	City/Water Dept.	Letter submitted as part of reporting requirements of discharge permit
07-Oct-85	24-Apr-87	LPC	County Health Dept.	Request of LPC to discharge contaminated water into storm sewer
20-Mar-86	24-Apr-87	LPC	County Health Dept.	Description of how LPC intends to address the ongoing maintenance of the proposed system
19-Sep-86	24-Apr-87	LPC	County Health Dept.	Application with \$25 fee for storm sewer industrial waste permit
30-Sep-86	24-Apr-87	LPC	County Health Dept.	Explanation to Fred Rogers that LPC will provide a plan for removal of coal tar body
17-Dec-86	24-Apr-87	LPC	County Health Dept.	Application and fee for discharge permit
14-Jan-87	24-Apr-87	LPC	County Health Dept.	Summary of items required before issuance of permit for water discharge
16-Jan-87	24-Apr-87	LPC	County Health Dept.	Analytical results of soil samples taken following excavation of coal tar body
26-Jan-87	24-Apr-87	LPC	County Health Dept.	Amendments offered by Lincoln to the letter dated January 26, 1987
26-Jan-87	24-Apr-87	LPC	County Health Dept.	Letter submitted as part of reporting requirements of discharge permit
28-Jan-87	24-Apr-87	LPC	County Health Dept.	Letter from Radian stating that system to be installed should satisfy criteria
06-Feb-87	24-Apr-87	LPC	County Health Dept.	Drawings illustrating connection of PVC piping to sewer system

TABLE 2-1

100 CONGRESS DOCUMENTATION LIST

09-Feb-87	24-Apr-87	LPC	County Health Dept.	Informing Fred Rogers that EPA had given verbal approval of storm sewer line
06-Mar-87	24-Apr-87	LPC	County Health Dept.	Draft of March 19 letter from Fred Rogers to Kevin Fleming
11-Apr-86	24-Apr-87	LPC	Dept. Health & Water	Request to use City wastewater system w/explanation of how water discharge will be maintained
19-Mar-86	24-Apr-87	LPC	EPA	Summary of activities to deal with contamination problem
20-Sep-86	24-Apr-87	LPC	Longhorn Disposal	Request for proposal to transport and dispose of coal tar body
07-Apr-87	24-Apr-87	LPC	Manhattan Const.	Notification of clay barrier to separate the north half of the perimeter drainage system from the south
30-Jul-86	31-Jul-86	LPC	Metropolitan	Report of Technical Support Services (Draft)
04-Aug-86	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
11-Aug-86	15-Aug-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
15-Aug-86	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
15-Aug-86	19-Aug-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
21-Aug-86	25-Aug-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
21-Aug-86	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
05-Sep-86	08-Sep-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
15-Sep-86	15-Sep-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
15-Sep-86	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
24-Sep-86	29-Sep-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
24-Sep-86	08-Oct-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
24-Sep-86	26-Sep-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
09-Oct-86	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
28-Oct-86	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
28-Oct-86	31-Oct-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
05-Nov-86	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
17-Nov-86	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
17-Nov-86	19-Nov-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
05-Dec-86	09-Dec-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
05-Dec-86	15-Dec-86	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
31-Dec-86	07-Jan-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
31-Dec-86	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
20-Jan-87	23-Jan-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
12-Feb-87	17-Feb-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
24-Feb-87	26-Feb-87	LPC	Metropolitan	Letter from health dept.
02-Mar-87	03-Mar-87	LPC	Metropolitan	Information in connection with the building permit for phase 2
03-Mar-87	06-Mar-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
03-Mar-87	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
13-Mar-87	15-Mar-87	LPC	Metropolitan	Letter from Maxia which lists dates, number of borings, and tests performed
25-Mar-87	24-Apr-87	LPC	Metropolitan	Authorization for access to Site for testing purposes
25-Mar-87	26-Mar-87	LPC	Metropolitan	Authorization for Metropolitan to access the site for coal tar investigation
30-Mar-87	24-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
30-Mar-87	02-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
16-Apr-87	20-Apr-87	LPC	Metropolitan	Informing Metropolitan that Law Engineering had begun work at site
20-Apr-87	24-Apr-87	LPC	Metropolitan	Responses by LPC to the March 23, 1987 Law Engineering meeting
24-Apr-87	27-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
24-Apr-87	28-Apr-87	LPC	Metropolitan	Most recent reports of Site filtration system from Maxia
16-Jan-87	24-Apr-87	LPC	Radian	Asking what reporting LPC must do since there are no hazardous wastes on site
20-Sep-86	24-Apr-87	LPC	Tx. Dept. Health	Request for approval of closure plan as soon as possible
19-Nov-86	24-Apr-87	LPC	Tx. Dept. Health	Letter from LCRA concerning alternative disposal methods
09-Dec-86	24-Apr-87	LPC	Tx. Dept. Health	Notification that Phase I of closure plan is complete
21-Jan-87	24-Apr-87	LPC	Tx. Dept. Health	Letter stating removal of coal tar body
03-Mar-87	24-Apr-87	LPC	Tx. Dept. Health	Report of excavation of coal tar body and characterization of Site by Radian
10-Mar-87	24-Apr-87	LPC	Tx. Dept. Health	Copy of specifications for a monitoring well
26-Mar-87	24-Apr-87	LPC	Tx. Dept. Health	***Says that soil is nonhazardous and asks for a concurrence with this finding

TABLE 2-1

100 CONGRESS DOCUMENTATION LIST

09-Aug-85	24-Apr-87	LPC	Tx. Dept. Water Res.	Summary of meeting which outlined details of contamination as Site
12-Aug-85	24-Apr-87	LPC	Tx. Dept. Water Res.	Summary of meeting with dept. of Water Resources
30-Jul-85	24-Apr-87	LPC	Tx. Railroad Comm.	Request for assistance in resolution of the disposition of waste water
09-Sep-86	24-Apr-87	LPC	Tx. Waste Comm.	Forwarding a copy of findings of coal tar site
21-Nov-85	24-Apr-87	LPC	Tx. Water Comm.	Temporary order application to discharge treated construction site water
21-Nov-85	24-Apr-87	LPC	Tx. Water Comm.	Request for temporary treated water discharge
20-Feb-86	24-Apr-87	LPC	Tx. Water Comm.	Listing of three companies which are interested in disposition of ground water
19-Mar-86	24-Apr-87	LPC	Tx. Water Comm.	Summary of activities to deal with contamination problem
31-Mar-86	24-Apr-87	LPC	Tx. Water Comm.	Disposal of residual carbon and disposal of groundwater
18-Sep-86	24-Apr-87	LPC	Tx. Water Comm.	Sent copies of Radian's report of Technical Support Services
28-Oct-86	24-Apr-87	LPC	Tx. Water Comm.	Acknowledges presence of Soward and Mason at meeting with Carrasco
10-Mar-87	24-Apr-87	LPC	Tx. Water Comm.	Final Report of Closure Activities for Site phase II
16-Jun-86	24-Apr-87	L. Col. River Aut.	LPC	Agreement regarding water sampling of Site
07-Nov-86	24-Apr-87	L. Col. River Aut.	LPC	Explanation of why coal tar cannot be used as a fuel source
23-Jan-86	24-Apr-87	Maxim Engineers	LPC	Notification that granular backfill and clay barrier are suitable for intended purpose
16-Sep-86	13-Feb-87	Maxim Engineers	LPC	Contaminated Landfill Receipts, Hazards Certification, Respirator Certification, Workers Release forms, Negative Air Sys
17-Sep-86	29-Sep-86	Maxim Engineers	LPC	Monitoring data of filtered water from Sep. 8 through Sep. 12
17-Sep-86	08-Oct-86	Maxim Engineers	LPC	Monitoring data of filtered water from Sep. 8 through Sep. 12
17-Sep-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Sep. 8 through Sep. 12
01-Oct-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Sep. 22 through Sep. 26 plus explanation of shut down of pump 1
10-Oct-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Sep. 29 through 3
28-Oct-86	28-Oct-86	Maxim Engineers	LPC	Monitoring data of filtered water from Sept. 29 through Oct. 3
28-Oct-86	19-Nov-86	Maxim Engineers	LPC	Monitoring data of filtered water from Oct. 13 through 17
28-Oct-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Oct. 13 through 17
28-Oct-86	28-Oct-86	Maxim Engineers	LPC	Monitoring data of filtered water from Sept. 8 through 12
30-Oct-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Oct. 20 through Oct. 29
30-Oct-86	19-Nov-86	Maxim Engineers	LPC	Monitoring data of filtered water from Oct. 20 through 29
06-Nov-86	19-Nov-86	Maxim Engineers	LPC	Monitoring data of filtered water from Oct. 27 through 31
06-Nov-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Oct. 27 through 31
14-Nov-86	15-Dec-86	Maxim Engineers	LPC	Monitoring data of filtered water from Nov. 3 through 7
14-Nov-86	09-Dec-86	Maxim Engineers	LPC	Monitoring data of filtered water from Nov. 3 through Nov. 7
14-Nov-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Nov. 3 through Nov. 7
20-Nov-86	15-Dec-86	Maxim Engineers	LPC	Monitoring data of filtered water from Nov. 10 through 14
20-Nov-86	09-Dec-86	Maxim Engineers	LPC	Monitoring data of filtered water from Nov. 10 through Nov. 14
20-Nov-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Nov. 10 through Nov. 14
04-Dec-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Nov. 24 through Nov. 28
04-Dec-86	07-Jan-87	Maxim Engineers	LPC	Monitoring data of filtered water from Dec. 24 through Dec. 28
05-Dec-86	13-Feb-87	Maxim Engineers	LPC	Description of role in excavation of coal tar body
12-Dec-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Dec. 1 through Dec. 15
12-Dec-86	07-Jan-87	Maxim Engineers	LPC	Monitoring data of filtered water from Dec. 1 through Dec. 5
22-Dec-86	23-Jan-87	Maxim Engineers	LPC	Monitoring data of filtered water from Dec. 8 through Dec. 15
22-Dec-86	24-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from Dec. 8 through Dec. 15
09-Jan-87	23-Jan-87	Maxim Engineers	LPC	Monitoring data of filtered water from Dec. 22 through Jan 2
20-Jan-87	17-Feb-87	Maxim Engineers	LPC	Monitoring data of filtered water from Jan. 5 through Jan 9
21-Jan-87	17-Feb-87	Maxim Engineers	LPC	Monitoring data of filtered water from Jan. 12 through Jan 16
04-Feb-87	17-Feb-87	Maxim Engineers	LPC	Monitoring data of filtered water from Jan. 19 through Jan 30
12-Feb-87	06-Mar-87	Maxim Engineers	LPC	Monitoring data of filtered water from February 2 through February
19-Feb-87	06-Mar-87	Maxim Engineers	LPC	Monitoring data of filtered water from February 9 through February 13
26-Feb-87	02-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from February 16 through February 20
05-Mar-87	15-Mar-87	Maxim Engineers	LPC	Letter from Maxim which lists dates, number of borings, and tests performed
12-Mar-87	02-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from March 7 through March 6
12-Mar-87	02-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from February 23 through February 27

TABLE 2-1

100 CONGRESS DOCUMENTATION LIST

26-Mar-87	28-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from March 9 through March 13
26-Mar-87	27-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from March 9 through March 13
10-Apr-87	28-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from March 23 through March 27
10-Apr-87	27-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from March 23 through March 27
10-Apr-87	27-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from March 16 through March 20
10-Apr-87	28-Apr-87	Maxim Engineers	LPC	Monitoring data of filtered water from March 16 through March 20
18-Jul-85	24-Apr-87	Radian	LPC	Summary of activities to date at Site
16-Aug-85	24-Apr-87	Radian	LPC	Summary of recent activities and suggestions for future activities
24-Mar-86	24-Apr-87	Radian	County Health Dept.	Sent report titled "Recommended Groundwater Treatment and Discharge Program..."
10-Apr-86	24-Apr-87	Radian	Tx. Dept. Health	Asking for review of test results and evaluation of how to dispose of materials
01-Jul-86	03-Mar-87	Radian	LPC	Report of Technical Support Services
01-Jul-86	13-Feb-87	Radian	LPC	Report of Technical Support Services (Draft)
04-Aug-86	24-Apr-87	Radian	LPC	Example monitoring report from laboratory on weekly monitoring
04-Aug-86	15-Aug-86	Radian	LPC	Example monitoring report from laboratory on weekly monitoring
13-Aug-86	24-Apr-87	Radian	City of Austin	Technical specifications for the LCRA Environmental laboratory
05-Sep-86	15-Sep-86	Radian	LPC	Summary of monitoring data to date
05-Sep-86	24-Apr-87	Radian	LPC	Summary of all monitoring data obtained to date from treatment system
01-Oct-86	13-Feb-87	Radian	LPC	Closure Plan
01-Dec-86	13-Feb-87	Radian	LPC	Specifications for Groundwater Monitoring Well at phase II site
16-Dec-86	24-Apr-87	Radian	LPC	Explanation of supervisory responsibilities in coal tar body removal
01-Jan-87	13-Feb-87	Radian	LPC	Draft Report of Excavation of Coal Tar Waste Body from Site
01-Jan-87	13-Feb-87	Radian	LPC	Characterization of Congress Site and Waste Body (Preliminary Draft)
26-Jan-87	03-Mar-87	Radian	LPC	Summary of groundwater treatment system status
27-Jan-87	24-Apr-87	Radian	LPC	Acceptance test procedure for Treatment System
01-Feb-87	03-Mar-87	Radian	LPC	Specifications of installation and sampling of the groundwater monitoring well as phase II site
01-Mar-87	03-Mar-87	Radian	LPC	Report of Excavation of Coal Tar Waste Body from Site
01-Mar-87	03-Mar-87	Radian	LPC	Characterization of Congress Site and Waste Body
04-Dec-86	13-Feb-87	Sprint Waste Disposal	LPC	Copies of truck logs, tickets, manifests, and copy of authorization
12-Dec-86	13-Feb-87	Sprint Waste Disposal	LPC	How wastes were disposed in landfill
19-Jul-85	24-Apr-87	Tx. Dept. Health	memo to file	Notification by LPC and Radian of contamination to Site
06-Aug-85	24-Apr-87	Tx. Dept. Health	Tx. Waste Systems	Dept. has no objection to Type I facility for soil
06-Aug-85	24-Apr-87	Tx. Dept. Health	Browning-Ferris	Dept. has no objection to Type I facility for soil
27-Aug-85	24-Apr-87	Tx. Dept. Health	LPC	Explanation of "small-quantity generator of hazardous waste"
27-May-86	24-Apr-87	Tx. Dept. Health	LPC	Recommendation that Type I landfills be contacted for proper disposal
28-Oct-86	24-Apr-87	Tx. Dept. Health	LPC	Closure plan for Site
26-Nov-86	13-Feb-87	Tx. Dept. Health	Sprint Waste Disposal	Authorization for Sprint to dispose of waste
21-Jan-87	24-Apr-87	Tx. Dept. Health	County Health Dept.	Response to inquiry concerning closure plan of Site
07-Aug-85	24-Apr-87	Tx. Railroad Comm.	LPC	Denial of request to inject contaminants into disposal well
06-May-86	24-Apr-87	Tx. Water Comm.	LPC	Commission allows LPC to truck water to specified facilities after filter treatment
12-May-86	24-Apr-87	Tx. Water Comm.	interoffice memo	Analysis of groundwater seepage from sump and Town Lake
30-Sep-86	24-Apr-87	Tx. Water Comm.	County Health Dept.	Positive reaction to LPC using storm sewer
08-Jan-87	24-Apr-87	Tx. Water Comm.	LPC	Reminder of new specific annual reporting requirements in Tx. Administ. Code
06-Feb-87	24-Apr-87	Tx. Water Comm.	LPC	Photographs taken during excavation of the coal tar at 1st and Congress

CHRONICLE OF EVENTS

- 7/01/85 LPC discovered black fluid running into pit during excavation of parking garage.
- 7/01/85 Lincoln Property Company hired Radian to investigate. Radian was selected because they provide:
- investigative capabilities
 - legal advice (environmental)
- 7/10/85 Lincoln Property Company began trucking water to Giddings to dispose of it in a Railroad Commission approved brine injection well.
- 7/15/85 Lincoln Property Company disposed of contaminated dirt by Longhorn Disposal in Austin Community Landfill pursuant to Texas Department of Health recommendation.
- 7/16/85 Lincoln Property Company was notified by Radian that the fluid was likely contaminated ground water by coal tar residue.
- Radian's and the University of Texas Archeological Department's historical research indicated an old coal gasification site on Phase II site
 - Radian's chemical analysis corresponds with historical research
- 7/16/85 Lincoln Property Company began storing water temporarily in on-site storage tanks.
- This change in procedure was due to a change in Radian's analysis.
- 7/16/85 Lincoln Property Company stopped shipping to Giddings.
- 7/16/85 Lincoln Property Company was notified by Radian to take steps to protect workers in excavation pit - Radian recommended that Lincoln Property Company hire industrial hygiene and occupational safety consulting company (Southwest Occupational Health Services).
- 7/16/85 Lincoln Property Company was notified by Radian of need to make EPA (Environmental Protection Agency) notice.
- 7/17/85 Lincoln Property Company was notified by Radian to make Superfund notification to both the National Response Center and the Spill Response Unit of the Texas Department of Water Resources.
- 7/17/85 Lincoln Property Company was notified by Radian of need to begin a comprehensive program of investigation utilizing surrounding properties.
- 7/17/85 Lincoln Property Company hired Southwest Occupational Health Services.
- 7/17/85 Kevin Fleming with Lincoln Property Company notified Bill Hamilton with Manhattan Construction Company orally of safety precautions.
- 7/18/85 Radian notified Tom Remaley with City of Austin of ground water problem.
- 7/18/85 Meeting with Spill Response Unit of Texas Department of Water Resources attended by Tom Grimshaw, Lynn Zimmerman - Radian; Kevin Fleming - Lincoln Property

Company; David Barker and Dick Martin - Texas Department of Water Resources; and Steve Drenner - Jenkins & Gilchrist

- Texas Department of Water Resources told Lincoln Property Company that the Texas Department of Water Resources did not have jurisdiction since Lincoln Property Company was excavating for office (i.e. people-oriented) useage rather than industrial useage.

- The Texas Department of Water Resources sent Lincoln Property Company to the Texas Department of Health

7/18/85 Lincoln Property Company notified Manhattan Construction Company of safety precautions by letter.

7/19/85 Meeting with Texas Department of Health attended by Kevin Fleming - Lincoln Property Company; Tom Grimshaw, Robert Wallace - Radian; and Leonard Mohrmann, L.B. Griffith - Texas Department of Health

- Lincoln Property Company made hazardous waste notification
- Texas Department of Health agreed it had jurisdiction of the problem
- At this point, test results were not in yet to determine if the substance was "hazardous" or "non-hazardous"

7/22/85 Radian completed RCRA tests. Liquids are "non-hazardous" for RCRA purposes.

7/24/85 Lincoln Property Company began trucking water to Texas City (Class I facility).

7/30/85 Kevin Fleming with Lincoln Property Company made telephone EPA notice to the National Response Center. Mr. Fleming offered to meet with Region 6 of EPA. He was told to await word from Region 6 if they wanted to meet.

8/3/85 Radian begins conducting geotechnical investigations.

8/3/85 Radian begins water level investigations.

8/9/85 Lincoln Property Company requested permission from City Water and Wastewater Department to discharge into sanitary sewer system.

8/14/85 Lincoln Property Company received preliminary report from Southwest Occupational Health Services to avoid direct skin contact. Kevin Fleming communicates advice to Manhattan Construction Company.

8/26/85 Lincoln Property Company received written report from Southwest Occupational Health Services. Lincoln Property Company provided this report to Manhattan Construction Company.

9/23/85 City Water and Wastewater refuses Lincoln Property Company's request to discharge into the sanitary sewer system due to:

- quality standards (would required pre-treatment)
- capacity problems

Lincoln Property Company sent to Austin/Travis County Health Department.

- 10/7/85 Lincoln Property Company requested Fred Rodgers of Austin/Travis County Health Department for permission to discharge into stormwater system after any required pre-treatment.
- 10/17/85 Austin/Travis County Health Department sends Lincoln Property Company to Texas Water Commission for permission to discharge into stormsewer system. They state they are doing so pursuant to direction from Austin District Office of the Texas Water Commission.
- 11/21/85 Lincoln Property Company filed application with Texas Water Commission for temporary permit to discharge pretreated liquids into Town Lake.
- 11/21/85 Kevin Fleming - Lincoln Property Company and Robert Wallace - Radian, meet with Bob Dicks of the Texas Water Commission.
- Bob Dicks suggested that other alternatives be pursued
 - Lincoln Property Company was informed that Texas Water Commission would make a decision upon review of temporary permit application
- 12/13/85 Meeting with Bob Silvus and Bob Dicks of the Texas Water Commission; Kevin Fleming of Lincoln Property Company; Steve Drenner of Jenkins & Gilchrist; and Robert Wallace of Radian.
- Lincoln Property Company told that possibility for getting permit was slim due to "political" realities.
 - Lincoln Property Company was encouraged to consider "other alternatives".
 - Lincoln Property Company was urged to go back to City Water and Wastewater Department for permission to dispose of in sanitary sewer system.
- 1/10/86 Meeting with John Ware - Assistant City Manager; Ron Bond - Water & Wastewater Department; Diana Granger - City Attorney's office; Bob Silvus - Texas Water Commission; Kevin Fleming - Lincoln Property Company; and Steve Drenner - Jenkins & Gilchrist.
- Bond: cites ordinance problem and some general reluctance to accept into system as reasons why pretreated fluids can't be discharged into sanitary sewer system
 - Silvus: cites political realities of Texas Water Commission permit procedure as reason why pretreated fluids can't be discharged into Town Lake
 - proposed solution suggested by Bond and Silvus - look to Austin/Travis County Health Department for permission to dispose of via stormsewer system
- 1/28/86 Meeting with Kevin Fleming - Lincoln Property Company; Steve Drenner - Jenkins & Gilchrist; and J.D. Head Legal Council for Texas Water Commission.
- Head explained Texas Water Commission permit procedure
 - Head expressed doubt over possible success of getting permit
 - Rex McDonald brought into meeting (head of enforcement of the Texas Water Commission)

TABLE 2-2 (Continued)

- He indicated that if the Radian water quality specifications are met, following pre-treatment, the fluid would be close to drinking water quality
- He indicated no Texas Water Commission permit is necessary to dispose of fluids via stormsewer system
- Lincoln Property Company told that Head would so advise City and County Health Department

1/31/86 Meeting with Fred Rodgers and Mike Candaes - Austin/Travis County Health Department; John Ware - Assistant City Manager; J.D. Head and Bob Silvas - Texas Water Commission; Jim Thompson, Andy Kovar, Ron Bond and Davis Ford - City Water and Wastewater; Diana Granger - City Attorney's office; Steve Drenner and Catherine Miller - Jenkins & Gilchrist; Kevin Fleming - Lincoln Property Company.

- general discussion of all disposal alternatives
- Lincoln Property Company asked to provide more detailed information regarding pre-treatment procedure

2/2/86 Lincoln Property Company provides City Water and Wastewater and Austin/Travis County Health Department some of the requested information.

2/20/86 Jim Thompson requests additional information of Lincoln Property Company.

3/10/86 Fred Rodgers requests additional information of Lincoln Property Company.

3/21/86 Lincoln Property Company complies with requests of Mr. Thompson and Mr. Rodgers.

TABLE 2-2 (Continued)

<u>2-20-86</u>	Lincoln Property Company responds to Bob Silvas/Texas Water Commission request for alternatives in the disposition of the ground water.
<u>2-24-86</u>	Texas Water Commission advises Lincoln Property Company that they will be investigating the site and request information and support in their investigation.
<u>4-10-86</u>	Radian requests Texas Department Health to review test results to determine whether the coal tar is hazardous or nonhazardous.
<u>4-19-86</u>	Espey Huston performs a groundwater seepage analysis for 100 Congress for purposes of determining required capacities of a groundwater treatment facility. Information is given to Radian.
<u>5-9-86</u>	Meeting held between Kevin A. Fleming/Lincoln Property Company and Jack Gatlin, Water & Wastewater Dept. at 100 Congress site to discuss filtration system.
<u>5-9-86</u>	Kevin Fleming responds to Jack Gatlin/Water & Wastewater Dept. on questions that he raised.
<u>5-21-86</u>	Water & Wastewater Dept. issues a City of Austin Special & Conditional, Industrial Waste Discharge Permit for Groundwaters From 100 Congress Avenue.
<u>5-27-86</u>	Texas Department of Health issues letter stating that coal tar material is non-hazardous; but Texas Department of Health considers the material to be a special waste requiring special handling.
<u>5-29-86</u>	Lincoln Property Company employed Lower Colorado River Authority to perform testing on treated and untreated groundwater at 100 Congress Site for purposes of determining effectiveness of the system.
<u>6-86</u>	Frances A. Verhalen/Ecology & Environment Inc. visits the site in June as a contractor to the U.S. Environmental Protection Agency to assess the situation.
<u>6-5-86</u>	Lincoln Property Company provides Ecology and Environmental Inc. with information regarding the groundwater contamination.

TABLE 2-2 (Continued)

6-28-86 Lincoln Property Company began discharging into sanitary sewer system.

8-1-86 Lincoln Property Company employs Coneway and Associates to produce an independent study of the groundwater situation and provide any recommendations for remedial action.

8-21-86 Patricia Curl with the Texas Water Commission investigated the 100 Congress Site in an effort to gain knowledge about this type of project. The Texas Water Commission will be investigating other such sites in the states and desired any pertinent information.

8-28-86 Lincoln Property Company received a letter from U.S. Department of Environmental Protection Agency providing a report from Ecology Environment Inc. Region VI of an investigation of the site.

9-9-86 Kevin Fleming/Lincoln Property Company provides Patricia Curl/Texas Water Commission with information that she requested regarding coal tar situation.

9-19-86 Lincoln Property Company requests permission of the Austin/Travis County Health Dept. to discharge treated groundwater into the storm sewer system.

9-22-86 Kevin A. Fleming/Lincoln Property Company, Robert Wallace/Radian, Leonard Mohrman/Texas Department of Health, Patricia Curl/Texas Water Commission, Sam Pole/Texas Water Commission meet to discuss disposition of coal tar body. Question was raised under which agency's jurisdiction.

9-26-86 Lincoln Property Company meets with various officials from Texas Water Commission (TWC) and Texas Department of Health (TDH). Purpose of meeting was to discuss jurisdiction on disposition of coal tar body. It was agreed that the Texas Department of Health would have jurisdiction with review by Texas Water Commission. Texas Water Commission agrees to issue a letter stating that if groundwater meets a quality criteria then Texas Water Commission has no objection to the treated groundwater being discharged into the storm sewer system. In attendance were the following people: Larry Soward/TWC, Carol Batterton/TWC, RF Silvus/TWC, Thomas Mason/TWC, Brya Dixon/TWC, Samuel Pole/TWC, Jim Haley/TWC, Philip Winsborough/TWC, Leonard Mohrmann/TDH, Rex McDonell, Jr., John Young/TWC, Robert Wallace/Radian, Don Bowers/LPC, Kevin Fleming/LPC, Ronny Landry/LPC, Steve

TABLE 2-2 (Continued)

Drenner/ Jenkins & Gilchrist.

- 9-30-86 Ronny Landry writes letter to Jorge Carrasco/City Manager of City of Austin requesting assistance in dealing with the coal tar problem.
- 10-3-86 Austin/Travis County Health Dept. denies Lincoln Property Company a permit to discharge into storm sewer system until coal tar body is removed and certain water quality levels are met.
- 10-8-86 Lincoln Property Company submits to Water & Wastewater Dept. a report of the analitical results of sampling treated ground water for months July, August and September.
- 10-15-86 Jorge Carrasco responds to Ronny Landry's letter of September 30, 1986, stating that discharge to storm sewer will not be granted until coal tar is removed.
- 10-16-86 Lincoln Property Company request that Lower Colorado River Authority use the coal tar as a source of energy as potential fuel source at the Fayette Power Project.
- 10-20-86 Lincoln Property Company submits to Texas Department of Health a closure plan prepared by Radian Corp. for the removal of the coal tar body and contaminated soils from 100 Congress Phase II land.
- 10-24-86 Ronny Landry/Lincoln Property Company writes Jorge Carrasco requesting 3 items: 1) permission to dishcharge treated groundwater into storm sewer system, 2) temporary increase in levels of discharge information into sanitary sewer system, 3) extension of Phase I building permit.
- 10-28-86 Leonard Mohrmann/Texas Department of Health approves the Closure Plan as prepared by Radian with a few comments. Texas Department of Health provided the Texas Water Commission with a copy of the closure plan and received their comments.
- 10-30-86 Lincoln Property Company requested an extension of the City of Austin Special and Conditional Industrial Waste Discharge Permit.
- 11-4-86 Jorge Carrasco issues letter outlining requirements that Lincoln Property Company must comply with prior to discharge into the storm sewer. Requirements are:

- 1) Removal of coal tar body.
- 2) Continued maintenance and operations of facilities.
- 3) Continuation of sampling and reporting operations required by Water and Wastewater Utility Discharge Permit.
- 4) Periodic monitoring inspection by Austin/Travis County Health Dept.

11-4-86 City of Austin grants Lincoln Property Company permission to increase discharge into Sanitary Sewer System from 20 gpm to 100 gpm.

11-7-86 Lower Colorado River Authority informs Lincoln Property Company that the request to use the coal tar in the Fayette Power Project was denied.

11-19-86 Lincoln Property Company informs Texas Department of Health that alternative methods of disposal of the coal tar body had been pursued but none were feasible.

The following group of items relate to the excavation of the coal tar body from the 100 Congress Phase II Land:

11-25-86 Lincoln Property Company requests Radian Corporation, Environmental Technology, Inc., Clarence Cullen Co., Maxim Engineers, Sprint Waste Disposal, to prepare to remove the coal tar as soon as possible.

11-26-86 Various contractors of Lincoln Property Company meet to establish plan for excavation of coal tar body. Environmental Technology, Inc. begins to prepare safety plan. Sequence of events is established as well as specific duties of each contractor.

11-28-86 Environmental Technology, Inc. trains various individuals on the safety program to be used.

11-29-86 The site was prepared for excavation.

12-1-86 Contracts were signed by Environmental Technology, Inc., Clarence Cullen, Sprint, Maxim for the excavation of the coal tar body. Excavation began on contaminated soils.

12-4-86 Excavation of the coal tar body is completed.

12-9-86 Lincoln Property Company notifies Texas

TABLE 2-2 (Continued)

Department of Health of completion of Phase I of the Closure Plan.

- 1-16-87 Radian issued a letter stating that the removal of coal tar was in accordance with the approved Closure Plan.
- 1-16-87 Lincoln Property Company provides Austin/Travis County Health Dept. with 1) analitical results of soil samples taken following excavation of coal tar body, and 2) copy of closure plan per their request.
- 1-21-87 Texas Department of Health writes Austin/Travis County Health Department that the coal tar body and contaminated soil was removed in accordance with provisions of Closure Plans as approved by Texas Department of Health.
- 1-23-87 Austin/Travis County Health Dept. states in a letter that a permit to discharge into the storm sewer system will be granted subject to the following conditions:
- 1) Installation and approval of permanent groundwater pretreatment facility.
 - 2) Continuance of sampling analysis and reporting operations currently in place.
 - 3) Special permit review at end of a 5 year period
 - 4) Notification of facility malfunctions or other problems.
 - 5) Notification of changes of communication with Lincoln Property Company.
- 1-26-87 Lincoln Property Company offers amendment to Austin/Travis County Health Department letter Jan. 23 denying a permit until the permanent treatment system has been installed. Lincoln Property Company requested discharge from the existing filtration system into the storm sewer.
- 1-26-87 Lincoln Property Company, Radian and Austin/Travis Health Department meet to discuss alternatives for discharge into the storm sewer. In attendance were: Fred Rodgers and Joe Sealy both with Austin/Travis County Health Dept., Wally Hise, Greg Behrens and Tom Grimshaw all with Radian and Kevin Fleming with Lincoln Property Company. Result of meeting was Autin/Travis County Health Dept. would review the alternatives with Libby Watson/ Assistant City Manager - City of Austin. Lincoln Property Company offered a testing procedure for the permanent filtration system

TABLE 2-2 (Continued)

prior to discharge into the storm sewer.

1-26-87 Radian issues letter stating that the permanent filtration system will treat groundwater as required by the Texas Water Commission, Austin/Travis County Health Dept., and Water & Wastewater Dept.

1-27-87 Radian prepared an acceptance test procedure for new ground water treatment system. Prior to continual discharge into storm sewer system.

1-30-87 Austin/Travis County Health Dept. issues a letter stating testing and monitoring conditions which must be met prior to approval of connecting the permanent pre-treatment discharge system to the storm sewer system. Austin/Travis County Health Dept. approves the plans for the permanent pre-treatment system as submitted on .

1-30-87 Libby Watson, Mike Candelas, Fred Rodgers of the City of Austin meet with Ronny Landry and Kevin Fleming of Lincoln Property Company, Steve Drenner/Jenkins & Gilchrist and Robert Wallace/Radian to discuss the issuance of a discharge permit into storm sewer system from a pretreatment system. The City of Austin agreed to do the following:

- issue a letter approving the permanent pre-treatment filtration system
- issue a permit once the existing pre-treatment system in the alley was connected to the storm sewer so long as any required inspections by other departments were made.

2-2-87 Austin/Travis County Health Dept. writes to Lincoln Property Company stating that a discharge permit will be granted for the purpose of discharging into the storm sewer once the connection of existing ground water treatment facility is connected to city storm sewer in conformity with City Plumbing Code and other applicable regulations as administered by the City of Austin Building Inspection Department. Other conditions to be met are included in the Jan. 30, 1987 letter from Austin/Travis County Health Dept. to Lincoln Property Company.

TABLE 2-3

WATER SAMPLING DATA

SAMPLE NO.	DATE	WATER TEMPERATURE (° C)	pH	SPECIFIC CONDUCTANCE (umhos)	BAILER VOLUMES (DEV./SAMPLING)	STABILIZED WATER DEPTHS		
						DATE	DEPTH (ft.)	ELEVATIONS
NW-1	04/18/87	24	7.0	1110	16/7	04/27/87	36.67	433.32
	05/25/87	26	6.46	1090	9/3	05/25/87	36.06	433.93
NW-2	04/18/87	24	7.1	1080	15/7	04/27/87	36.47	434.11
	05/25/87	27	6.56	1070	10/3	05/25/87	36.38	434.20
NW-3	04/17/87	26	7.8	1150	10/9	04/27/87	36.54	434.02
	05/25/87	25	6.56	1120	10/3	05/25/87	36.48	434.08
NW-4	04/17/87	26	6.8	1700	16/10	04/27/87	35.95	433.95
	05/25/87	26	6.39	1400	10/1	05/25/87	35.83	434.07
NW-5	04/27/87	25	6.8	1325	5/7	04/27/87	34.75	433.63
						05/25/87	34.33	434.05
SUMP PIT 1	05/25/87	23	7.10	1230				
SUMP PIT 2	05/25/87	25	7.11	900				
SUMP PIT 3	05/25/87	24	6.79	162				
SUMP PIT 4	05/25/87	23	7.21	1120				

TABLE 2-4

WELL ELEVATIONS (FEET ABOVE MSL)

<u>WELL NUMBER</u>	<u>TOP OF CASING</u>	<u>TOP OF MANWAY</u>
MW-1	469.99	470.29
MW-2	470.58	470.81
MW-3	470.56	470.79
MW-4	469.90	470.19
MW-5	468.38	468.79

NOTE: All measurements were made on the west edge of the wells' casing tops and manways. Manway tops are essentially ground level elevations.

Benchmark Description: Northwest corner of Congress Avenue and West Second Street. "Triangle" cut on top of curb at south end of inlet, west curb line of Congress Avenue. Elevation = 470.65'.

TABLE 2-5

SAMPLE NUMBER	HNU FIELD ANALYSIS DATA OF SOILS WELL NUMBER				
	RELATIVE CONCENTRATIONS - HNU UNITS)				
	MW-1	MW-2	MW-3	MW-4	MW-5
SURFACE					
1	2	60	130	60	150
2	1	400	60	85	
3	<1	650	300	110	
4	<1	500	190	<1	
5	<1	280	150	<1	
6	<1	480	300	40	
7	1	250	10	45	
8	1	250	300	60	
9	<1	250	250	400	
10	2	500	70	500	320
11	1	250	300	650	175
12	1	200	150		
13	200	800	600		
BOTTOM					

TABLE 2-6

CONSTITUENTS	LABORATORY SOIL ANALYSES DATA SUMMARY												
	WELL NUMBER												
	MW-1	SB-2A-1	SB-2A-2	MW-2	MW-3			MW-4			MW-5		
	SAMPLE			SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	
	13			2 & 3	13	2 & 3	8 & 9	11,12,13	2 & 3	9	10 & 11	10 & 11	
(CONCENTRATIONS - PARTS PER MILLION)													
SILVER	0.1	-	-	<0.1	<0.1	0.1	<0.1	0.4	<0.1	<0.1	0.1	<0.1	
ARSENIC	1.4	-	-	0.08	0.67	0.41	0.6	0.78	0.41	0.28	0.97	0.24	
BARIUM (TOTAL)	4700	3300	1600	3600	7000	1500	2900	8000	4300	3200	7200	7100	
BARIUM (SOLUBLE)	-	14.9	7.4	-	-	-	-	-	-	-	-	-	
BORON	5.5	-	-	5.6	11	<0.5	<0.5	5.6	<0.5	22	<0.5	5.6	
CADMIUM	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	
CHROMIUM	11.4	-	-	1.1	3.3	9.3	4.3	4.6	4.9	5.6	11.1	10.7	
COPPER	11.1	-	-	6.2	2.4	8.5	4.3	3.8	4.1	5.5	14	9.3	
MERCURY	0.04	-	-	0.02	0.02	0.23	0.01	0.04	0.02	0.02	0.02	0.03	
MANGANESE	155	-	-	73	113	162	126	114	158	210	249	476	
MOISTURE *	7.45	-	-	17.2	5.6	14.2	14.8	10.4	10.7	9.2	6.42	9.79	
NICKEL	13.1	-	-	11.4	2.6	7.2	5.5	4.4	4.4	6.7	12.3	11	
LEAD	4.8	-	-	23	3.6	49	4.9	4.0	11	6.0	4.7	4.5	
SELENIUM	<0.25	-	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
TOTAL ORGANIC CARBON *	1.59	-	-	4.9	1.28	1.7	0.09	0.81	0.17	0.1	1.16	0.53	
ZINC	12	-	-	6	2.4	30.3	6.8	3.4	12	9.2	22	10.1	
(CONCENTRATIONS - MICROGRAMS PER KILOGRAM)													
PHENOL	3400	-	-	<	<	<	<	<	<	<	<	<	
2,4-DIMETHYLPHENOL	3500	-	-	<	<	<	<	<	<	<	<	<	
NAPHTHALENE	67000	-	-	3700000	3000000	<	<	84000	<	<	<	<	
ACENAPHTHYLENE	11000	-	-	490000	190000	<	<	16000	<	<	<	<	
ACENAPHTHENE	<	-	-	<	190000	<	<	80000	<	<	<	<	
FLUORENE	8000	-	-	520000	240000	<	<	45000	<	<	<	<	
PHENANTHRENE	36000	-	-	2100000	610000	30000	<	250000	<	<	<	<	
ANTHRACENE	12000	-	-	390000	170000	5900	<	48000	<	<	<	<	
FLUORANTHENE	20000	-	-	1500000	290000	34000	<	83000	<	<	<	<	
PYRENE	17000	-	-	690000	320000	70000	<	85000	<	<	<	<	
BENZO (a) ANTHRACENE	22000	-	-	630000	180000	<	<	40000	<	<	<	<	
CHRYSENE	15000	-	-	470000	<	60000	<	34000	<	<	<	<	
BENZO(b) FLUORANTHENE	<	-	-	480000	<	<	<	27000	<	<	<	<	
BENZO(k) FLUORANTHENE	<	-	-	510000	<	<	<	29000	<	<	<	<	
BENZO(a) PYRENE	3500	-	-	310000	<	22000	<	28000	<	<	<	<	
INDENO (1,2,3-cd) PYRENE	<	-	-	160000	<	<	<	12000	<	<	<	<	
BENZO(g,h,i) PERYLENE	<	-	-	150000	<	<	<	13000	<	<	<	<	
(RELATIVE CONCENTRATIONS - HNU UNITS)													
HNU	200	-	-	400/650	800	160/300	300/250	300/150/600	85/110	400	500/650	1320/175	

(*) = Weight Percent

(-) NOT ANALYZED

(<) LESS THAN DETECTION LIMITS

MONITORING WELL															TREATMENT SYSTEM										REGULATORY OR DISCHARGE LIMITS		
CONSTITUENTS	MW-1	MW-2	MW-3	MW-4	MW-5	SUMP PIT #1	SUMP PIT #2	SUMP PIT #3	SUMP PIT #4	INFLUENT	EFFLUENT	EFFLUENT	SAFE DRINKING	SAFE DRINKING	CITY OF AUSTIN												
						TS-P1	TS-P2	TS-P3	TS-P4	TS-12	TS-E	TS-E1	WATER REGULATION	WATER REGULATION	DISCHARGE LIMITS												
												(SPLIT)	LIMITS	LIMITS (PROPOSED)													
												SPL ; SML															

SILVER	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	0.05		0.1
ARSENIC	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	0.05		0.05
BARIUM	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<0.5		1.0	1.5	5.0
BORON	0.22	0.45	0.68	0.45	0.08	0.45	0.45	0.45	0.67	0.56	0.67	-	-	-				1.0
CADMIUM	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-		0.01	0.005	0.02
CHLORIDE	74	100	144	139	96	128	32	14	64	91	106	118	137			250		100
CHROMIUM	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-		0.05	0.12	1.0
COPPER	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-		1.0	1.3	1.0
CYANIDE	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-				0.02
FORMALDEHYDE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-				DETECTABLE
MERCURY	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-		0.002	0.003	0.005
PHOSPHORUS	0.68	1.11	1.25	0.68	0.125	1.75	1.12	0.90	0.35	1.45	1.35	-	-	-				6.0
MANGANESE	1.2	1.1	0.96	1.5	0.67	0.4	2.0	<0.05	<0.05	0.55	0.55	10.60	10.53			0.05		1.0
NICKEL	<0.05	0.07	0.08	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-				1.0
ORTHOPHOSPHATE	<0.05	<0.05	<0.05	<0.05	0.025	1.45	0.90	0.25	0.24	1.25	0.62	-	-	-				
LEAD	<0.05	<0.05	<0.05	<0.05	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-		0.05	0.02	0.1
PHENOLICS	10.3	3.6	0.51	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-				< 0.05
SELENIUM	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-		0.01	0.045	0.02
SULFATES	104	24	71	108	260	89	24	16	120	92	87	108	104			250.0		75
TOTAL ORGANIC CARBON	-	-	-	-	-	-	-	-	-	-	-	<1	<1					20.0
ZINC	<0.05	<0.05	<0.05	<0.05	0.11	0.06	0.38	0.18	<0.05	0.17	0.52	-	-	-		5.0		5.0

[illegible]

TABLE 2-8

CARBON NUMBER ANALYSIS SUMMARY OF
EXTRACTED HYDROCARBONS FROM
MONITOR WELL WATER SAMPLES

CARBON NUMBER	MOL PERCENT		
	MW-1	MW-2	MW-3
C1	0.000	0.000	0.000
C2	0.000	0.000	0.000
C3	0.000	0.000	0.000
C4	0.000	0.000	0.000
C5	0.000	0.000	0.000
C6	1.917	0.139	0.347
C7	0.000	0.877	3.425
C8	0.000	0.607	4.058
C9	0.000	4.395	20.645
C10	4.079	4.873	5.544
C11	5.231	10.844	12.529
C12	13.733	39.250	39.406
C13	48.831	10.033	4.556
C14	5.314	5.821	3.260
C15	7.767	6.204	2.255
C16	4.664	3.561	0.930
C17	2.489	1.613	0.645
C18	2.025	4.197	0.281
C19	2.780	1.383	0.783
C20	1.170	2.009	0.884
C21	0.000	0.535	0.099
C22	0.000	2.255	0.279
C23	0.000	0.693	0.065
C24	0.000	0.463	0.009
C25	0.000	0.248	0.000

APPENDIX C

Diagrams - Soil and Ground Water Contaminant Concentrations

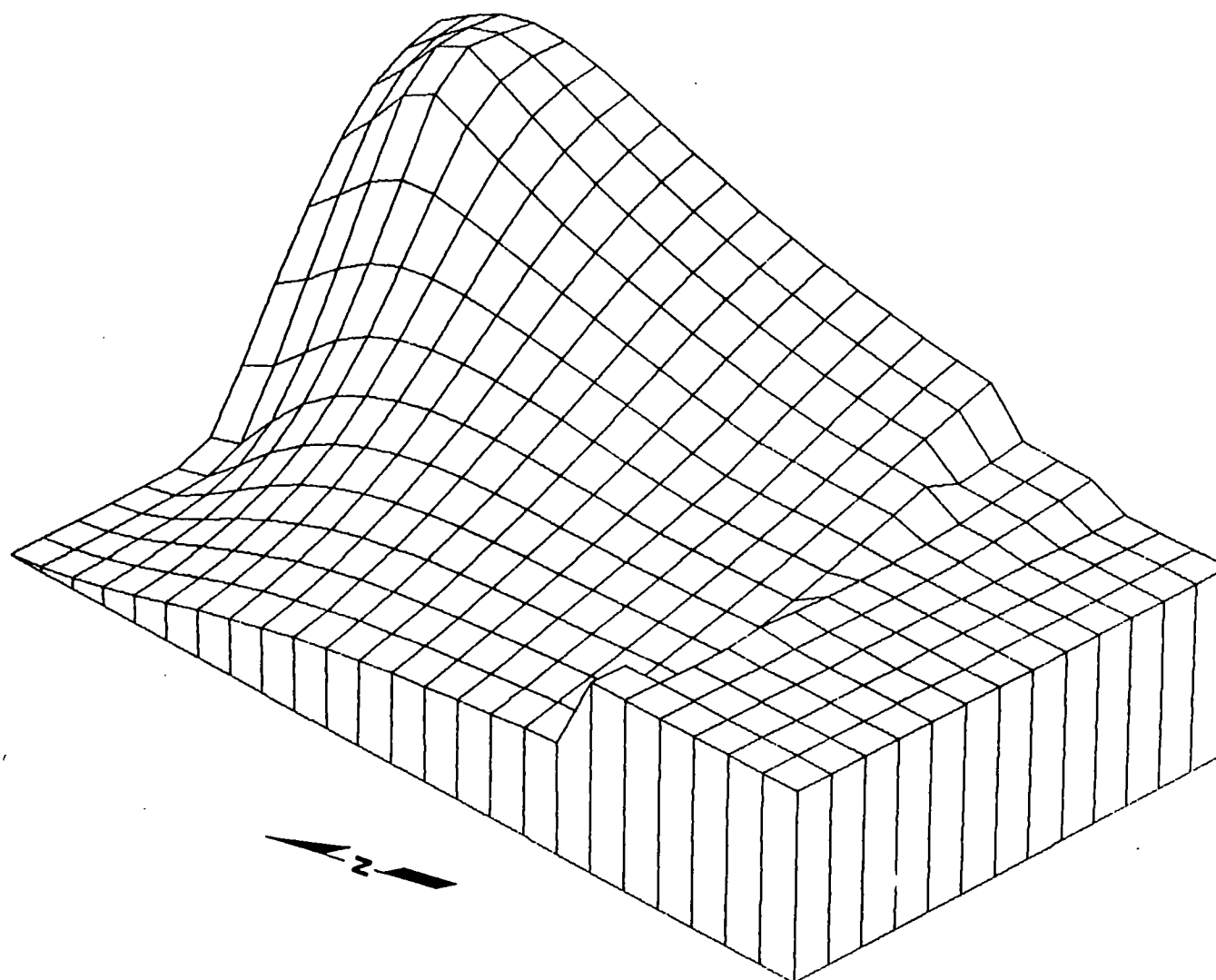
Soil Samples

Barium
Chromium
Mercury
Lead
Naphthalene

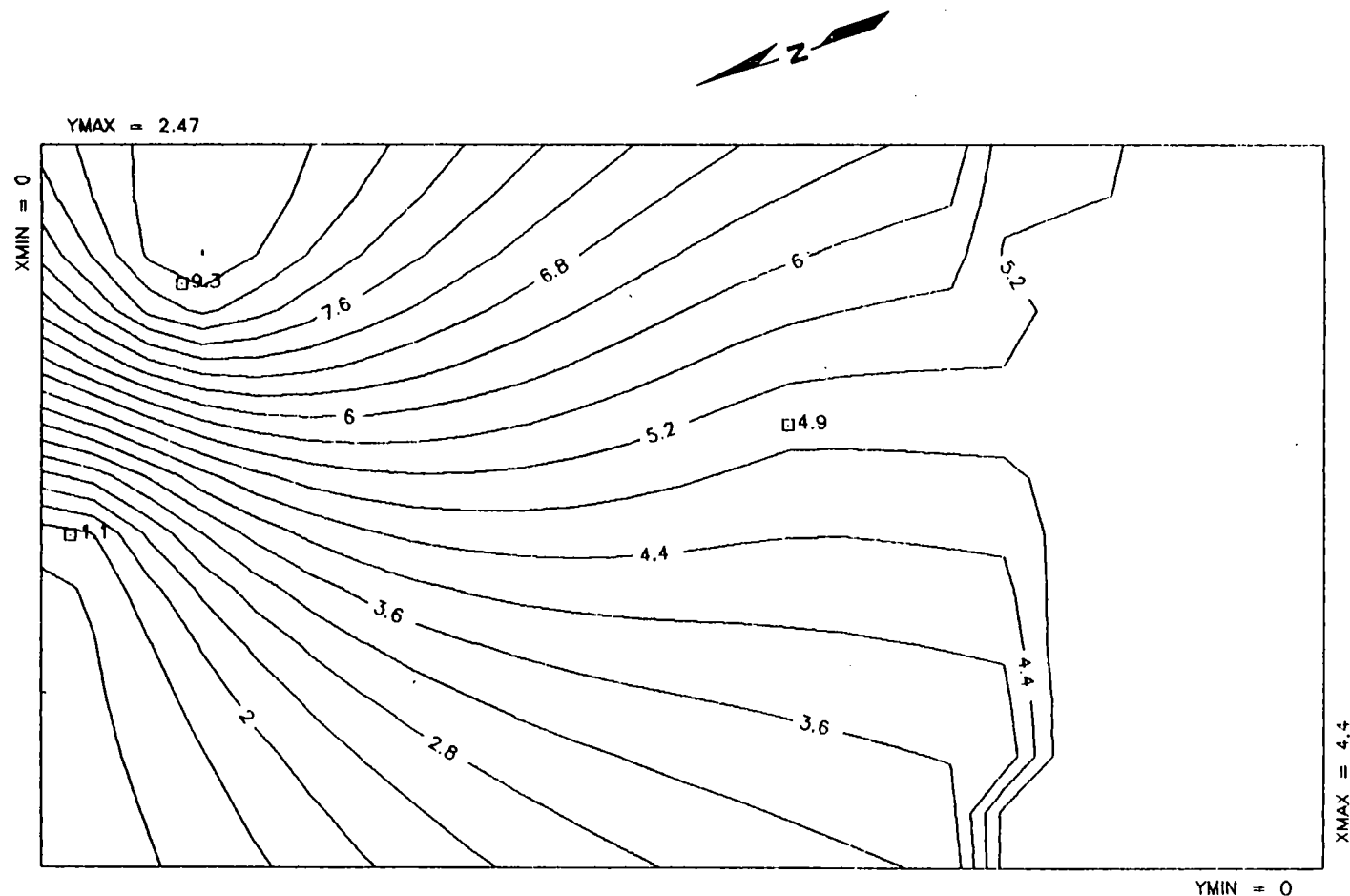
Ground Water Samples

Barium
Chloride
Manganese
Phenolics
Benzene
Toluene
Ethylbenzene
Naphthalene

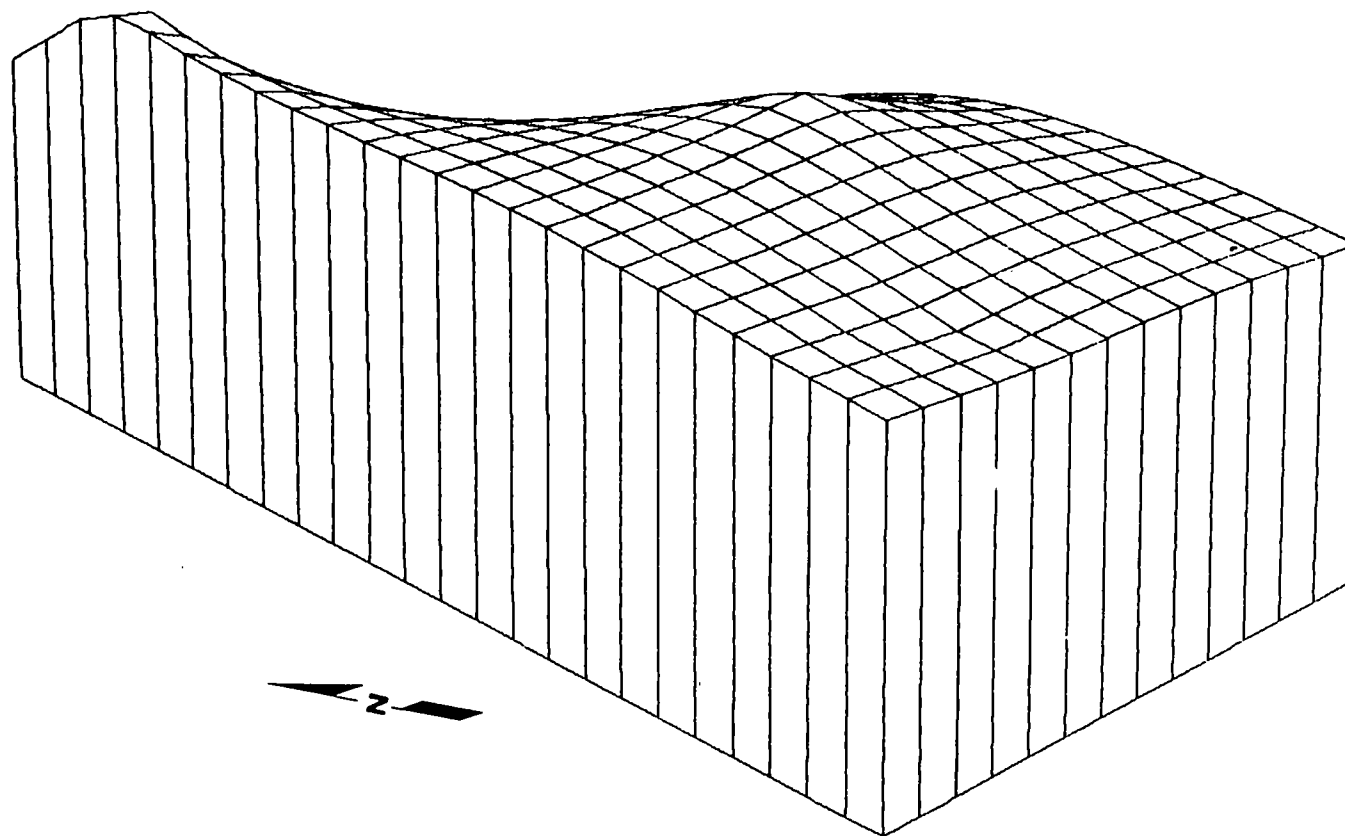
NOTE: Both two-dimensional plats and three-dimensional diagrams are presented in this appendix.



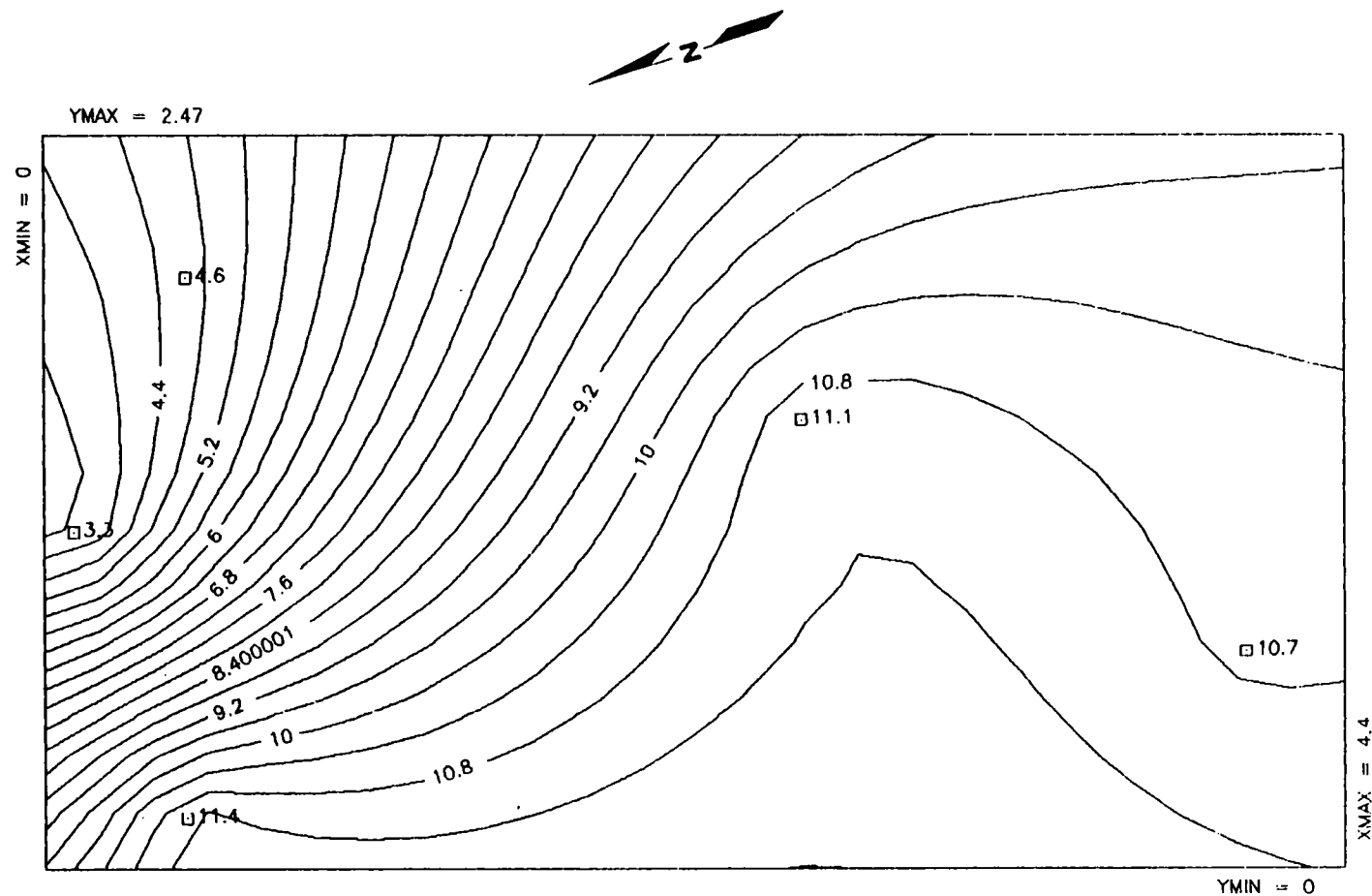
CHROMIUM CONCENTRATIONS IN SOIL SAMPLES - 0 TO 5.5 FT. DEPTH (MG/L)



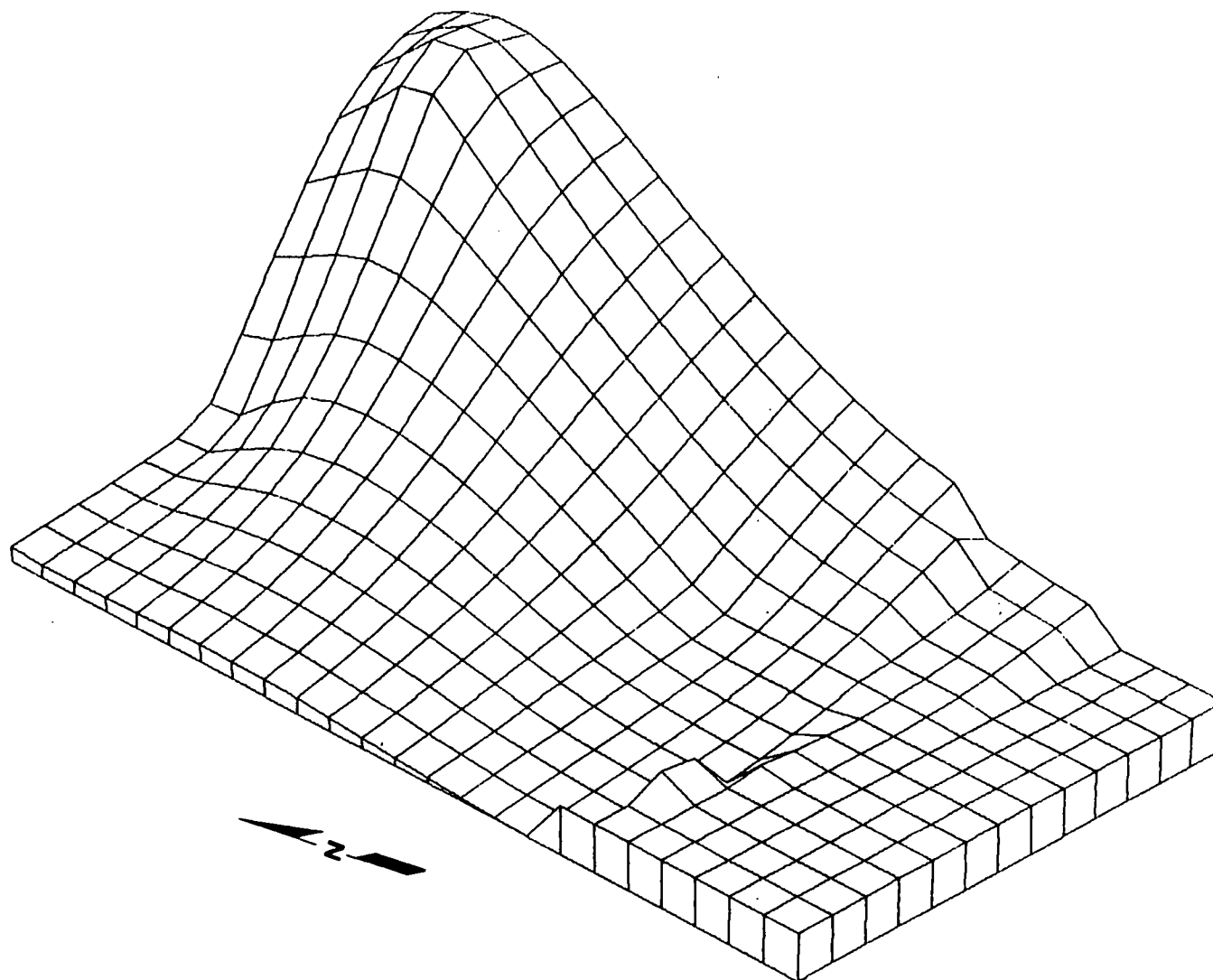
CHROMIUM CONCENTRATIONS IN SOIL SAMPLES - 0 TO 5.5 FT. (MG/L)



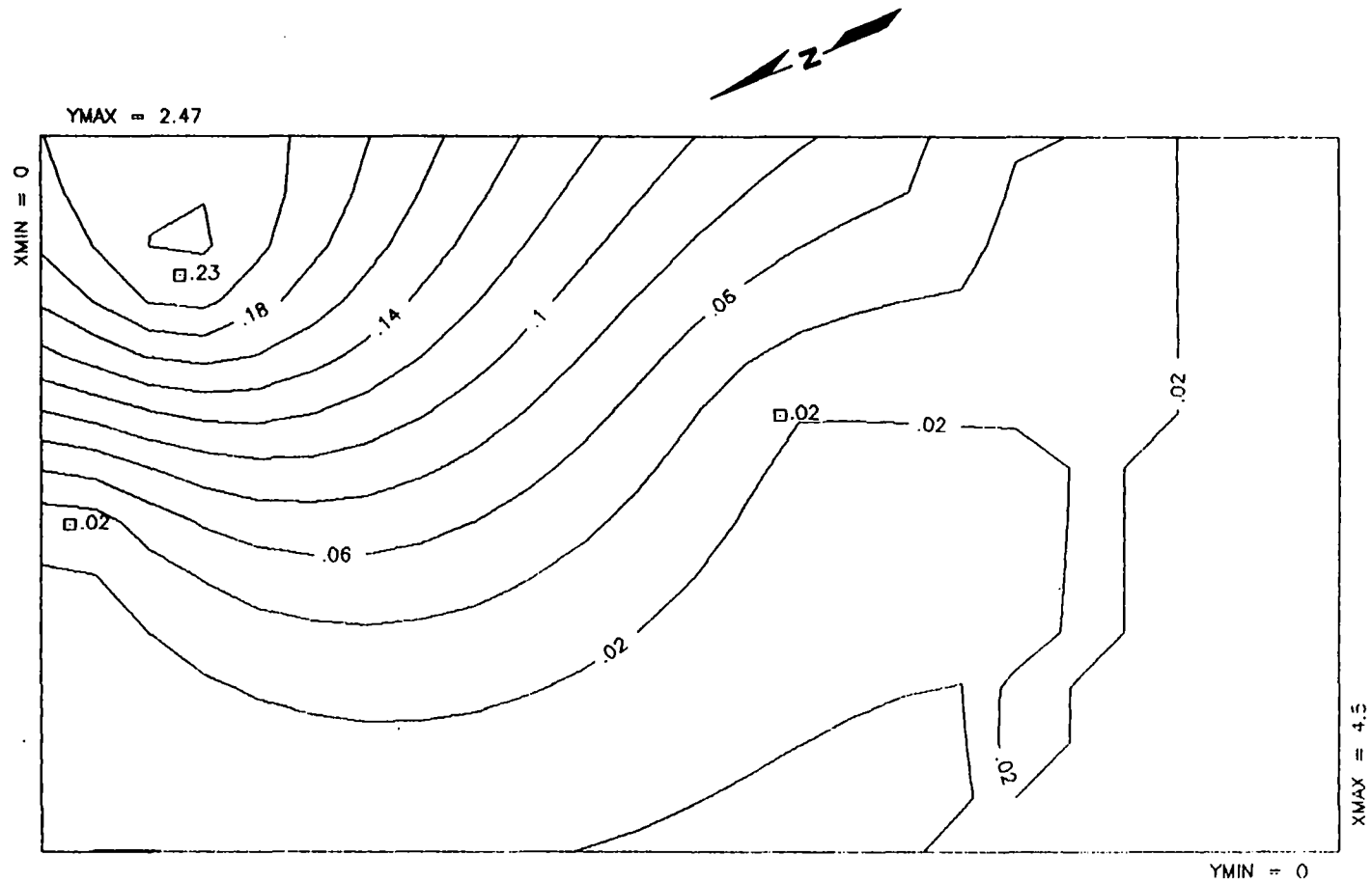
CHROMIUM CONCENTRATIONS IN SOIL SAMPLES - 33 TO 40.5 FT. DEPTH (MG/L)



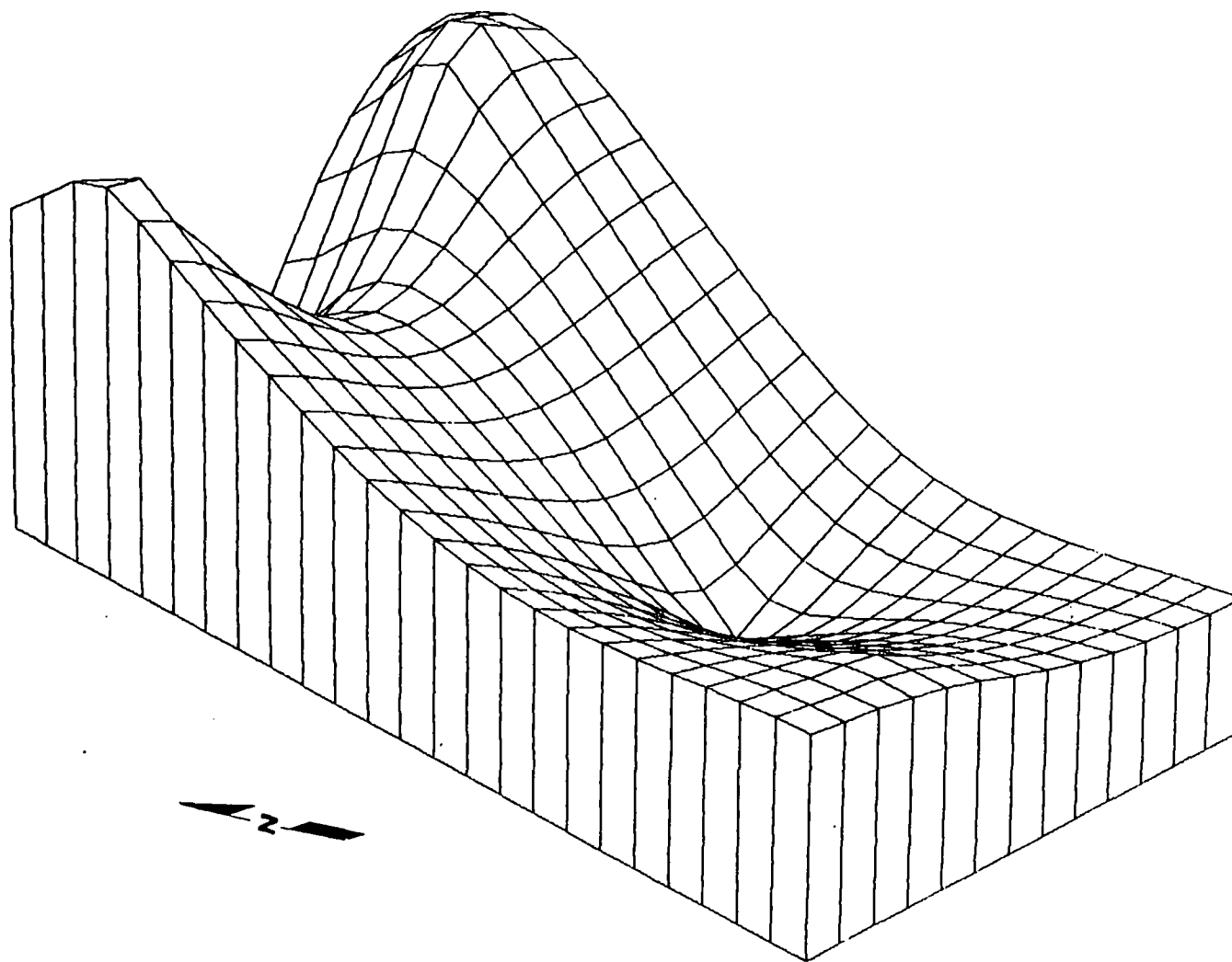
CHROMIUM CONCENTRATIONS IN SOIL SAMPLES - 33 TO 40.5 FT. DEPTH (MG/L)



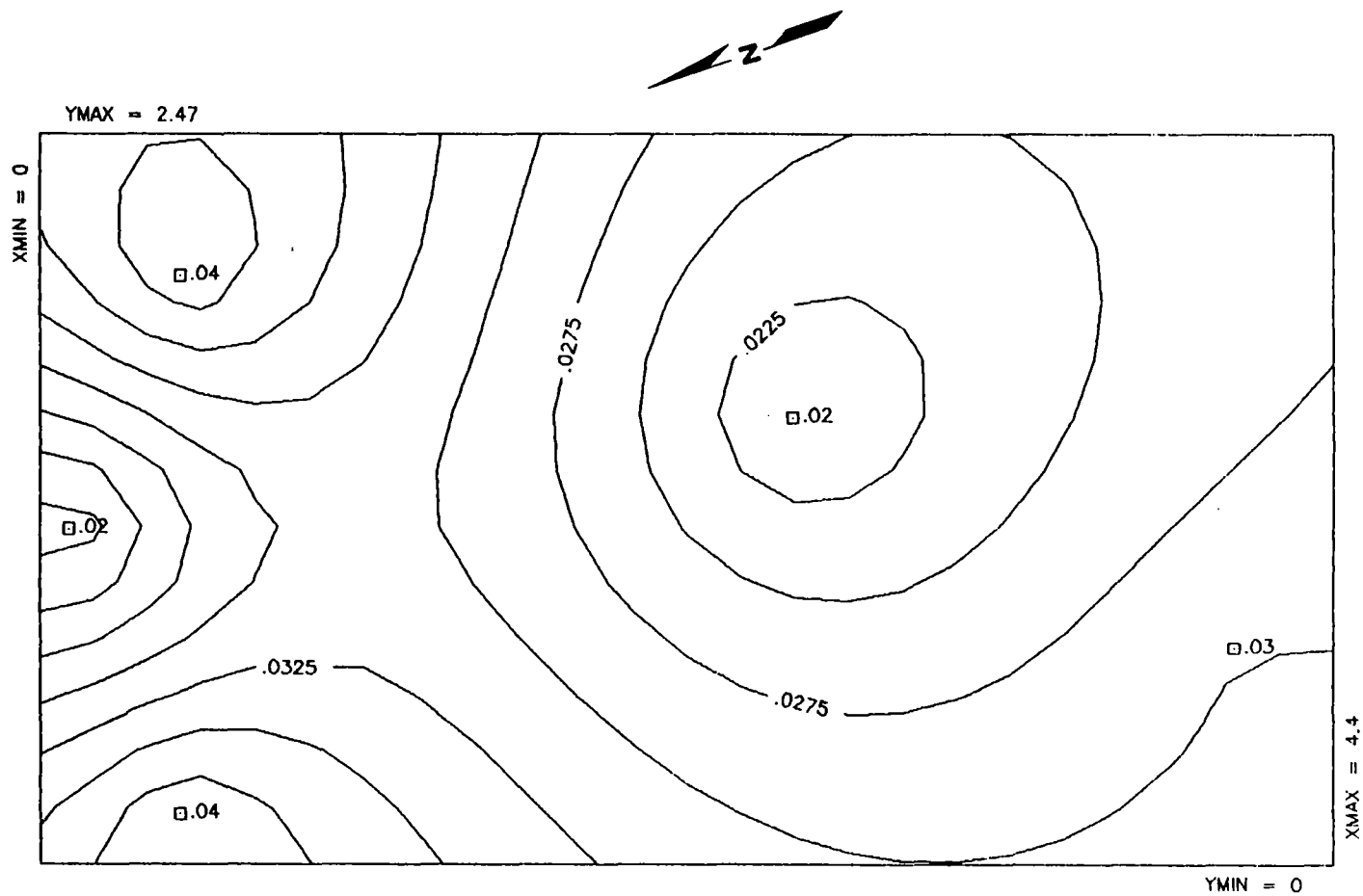
MERCURY CONCENTRATIONS IN SOIL SAMPLES - 0 TO 5.5 FT. DEPTH (MG/L)



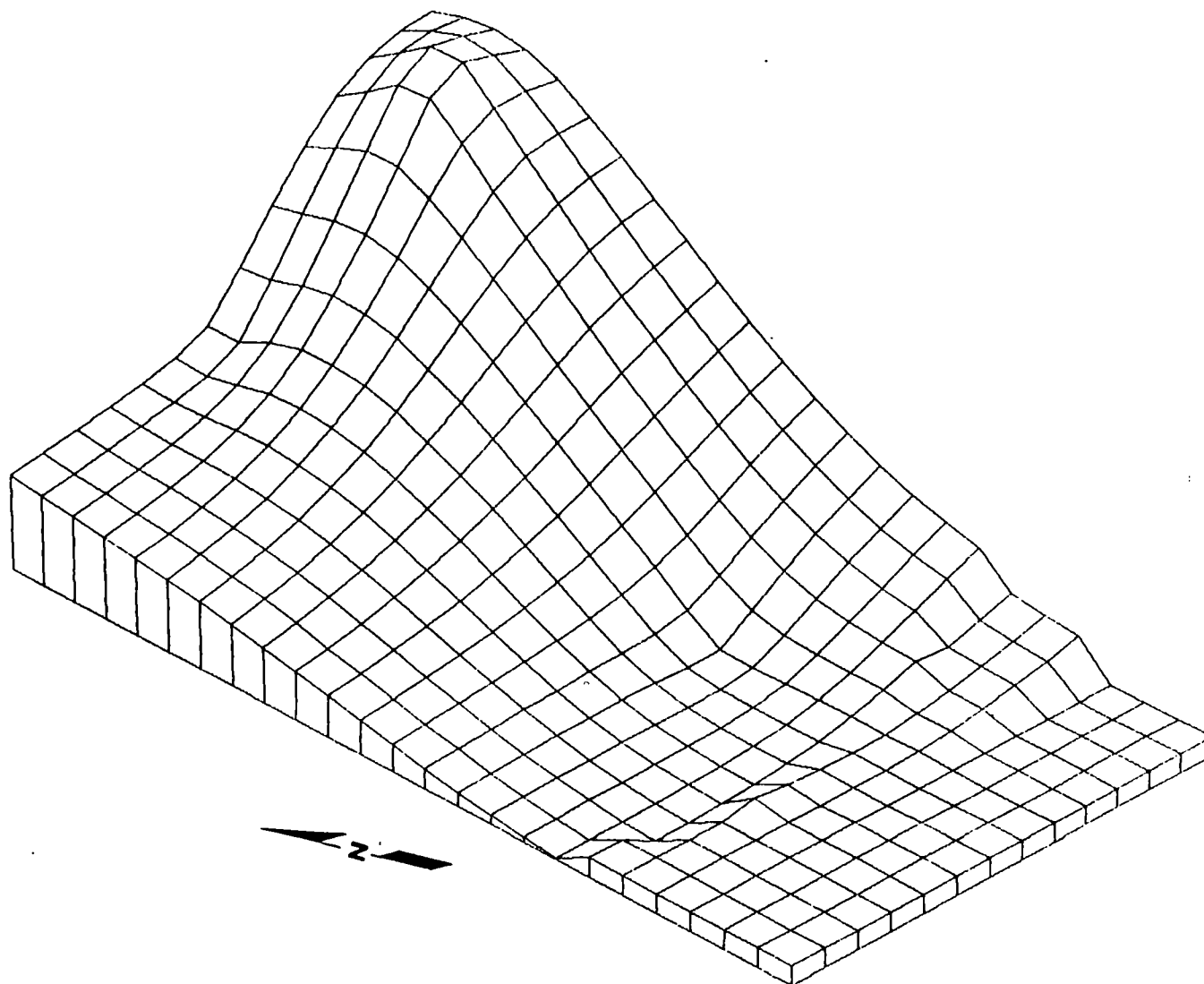
MERCURY CONCENTRATIONS IN SOIL SAMPLES - 0 TO 5.5 FT. DEPTH (MG/L)



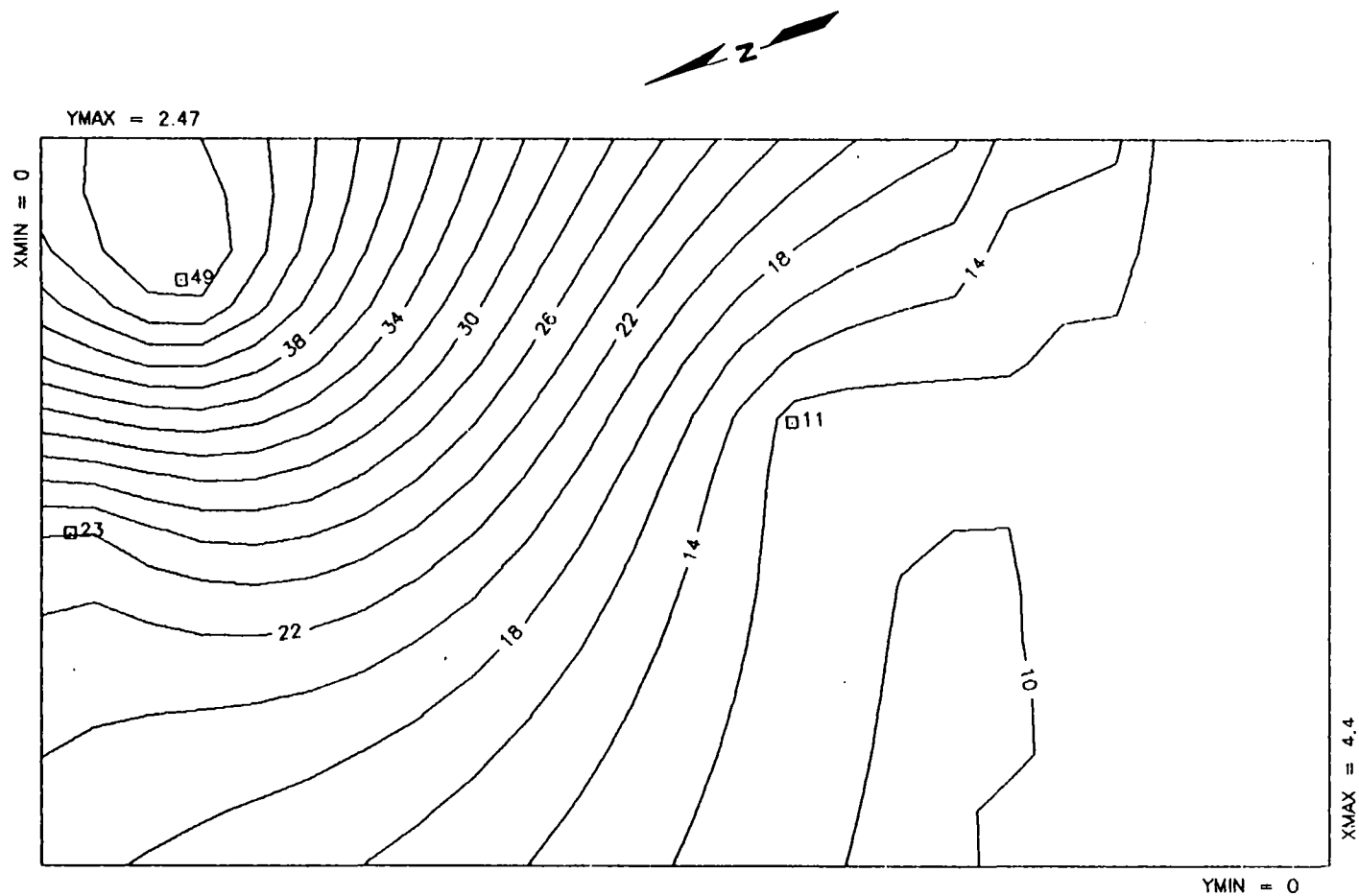
MERCURY CONCENTRATIONS IN SOIL SAMPLES - 33 TO 40.5 FT. DEPTH (MG/L)



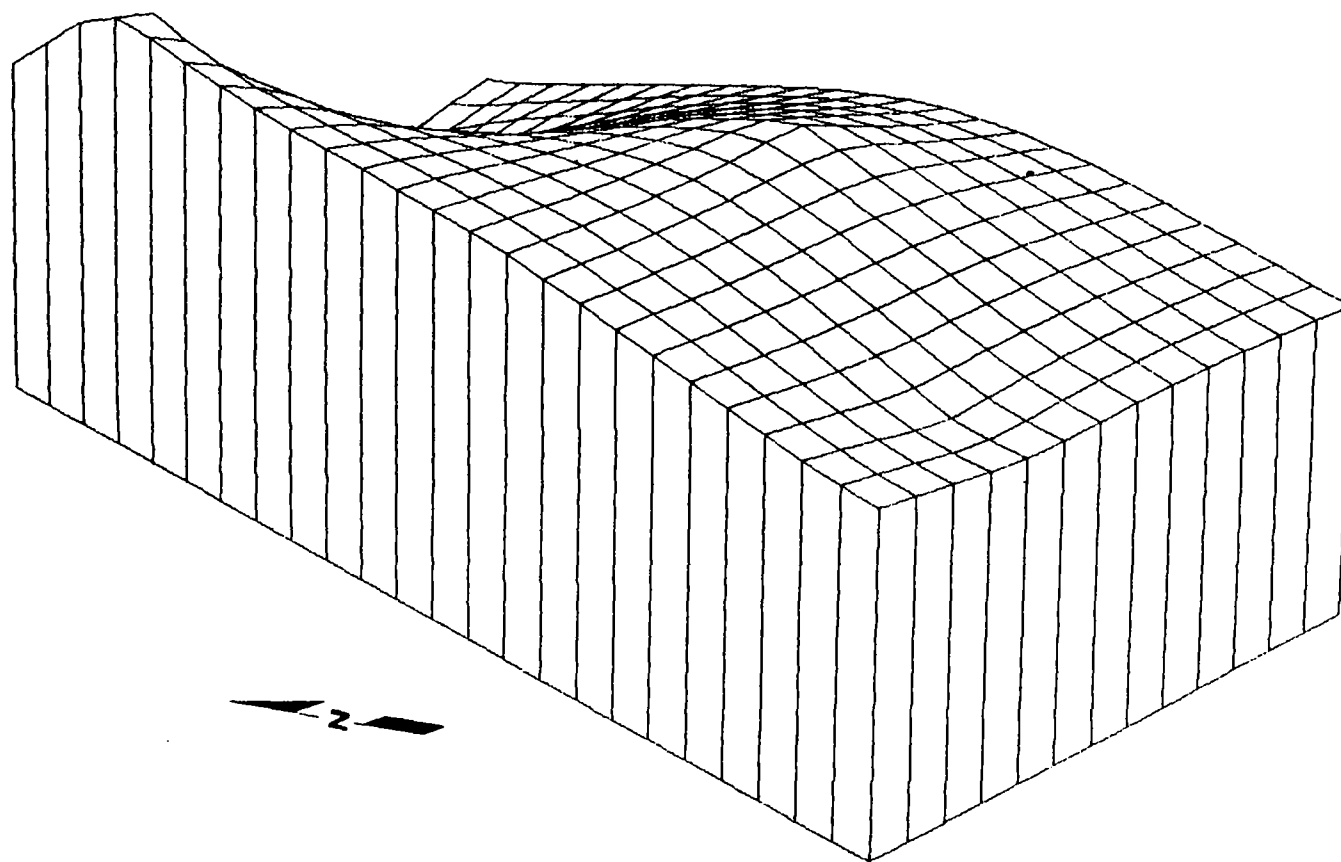
MERCURY CONCENTRATIONS IN SOIL SAMPLES - 33 TO 40.5 FT. DEPTH (MG/L)



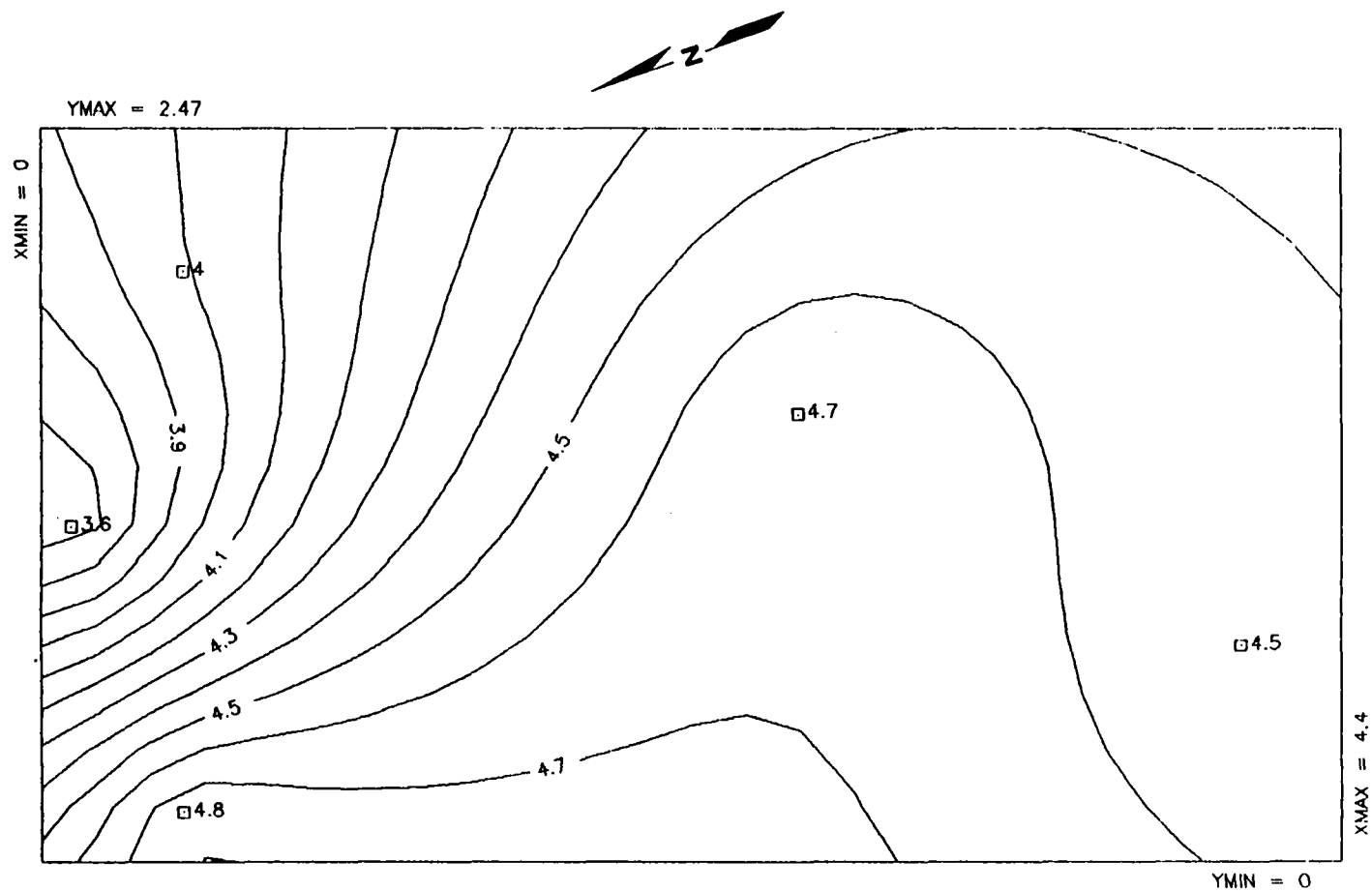
LEAD CONCENTRATIONS IN SOIL SAMPLES - 0 TO 5.5 FT. DEPTH (MG/L)



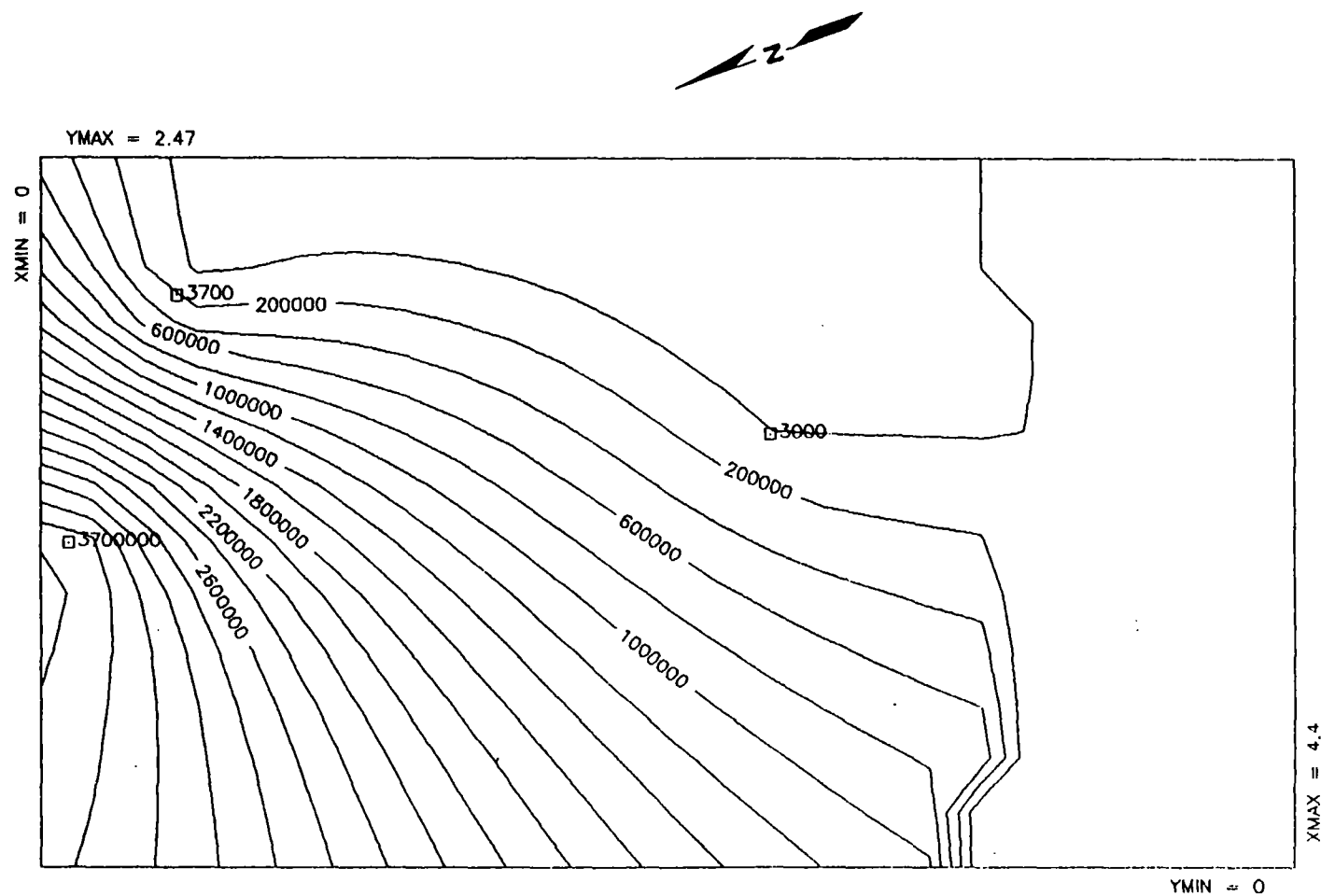
LEAD CONCENTRATIONS IN SOIL SAMPLES - 0 TO 5.5 FT. DEPTH (MG/L)



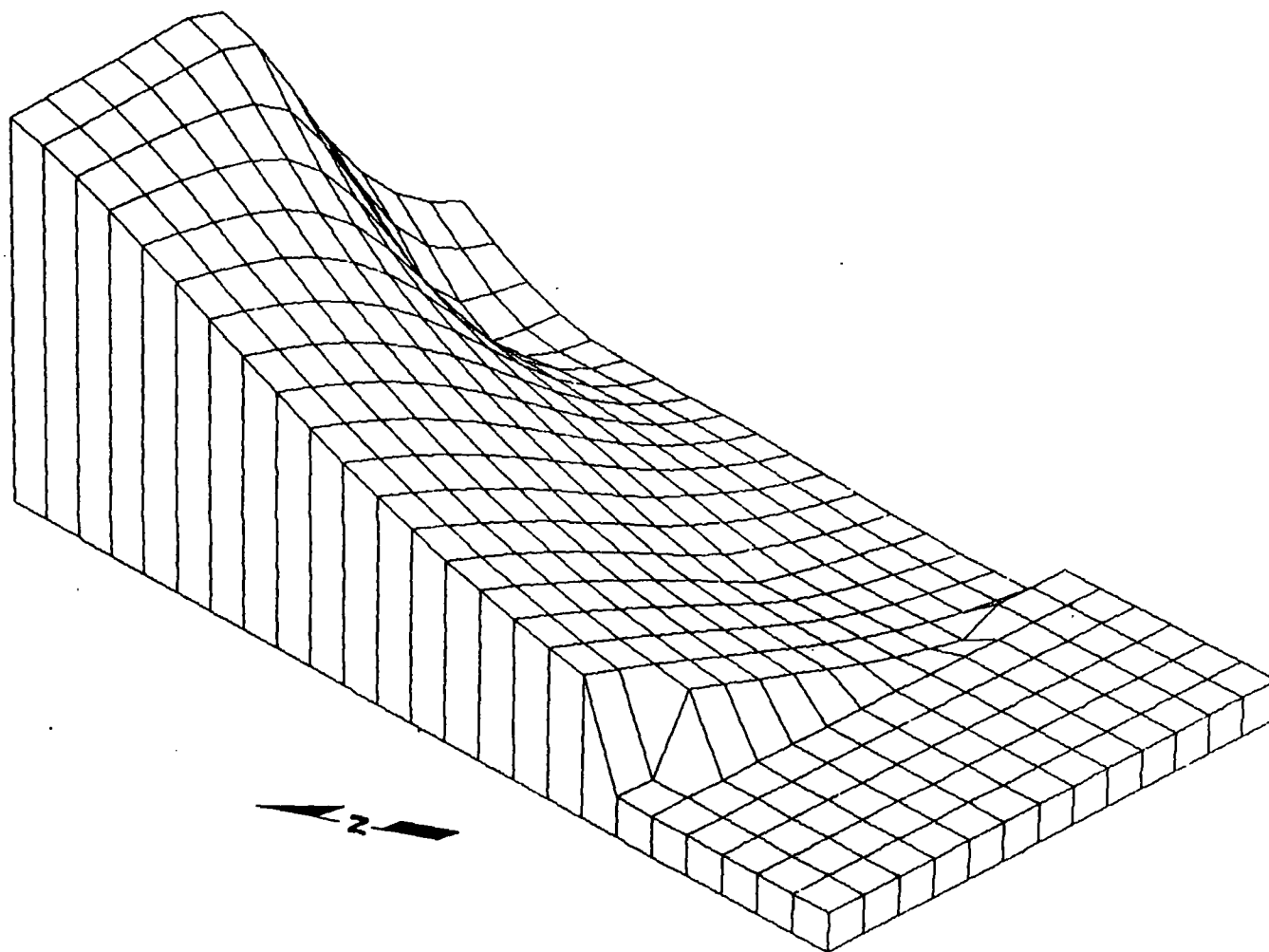
LEAD CONCENTRATIONS IN SOIL SAMPLES - 33 TO 40.5 FT. DEPTH (MG/L)



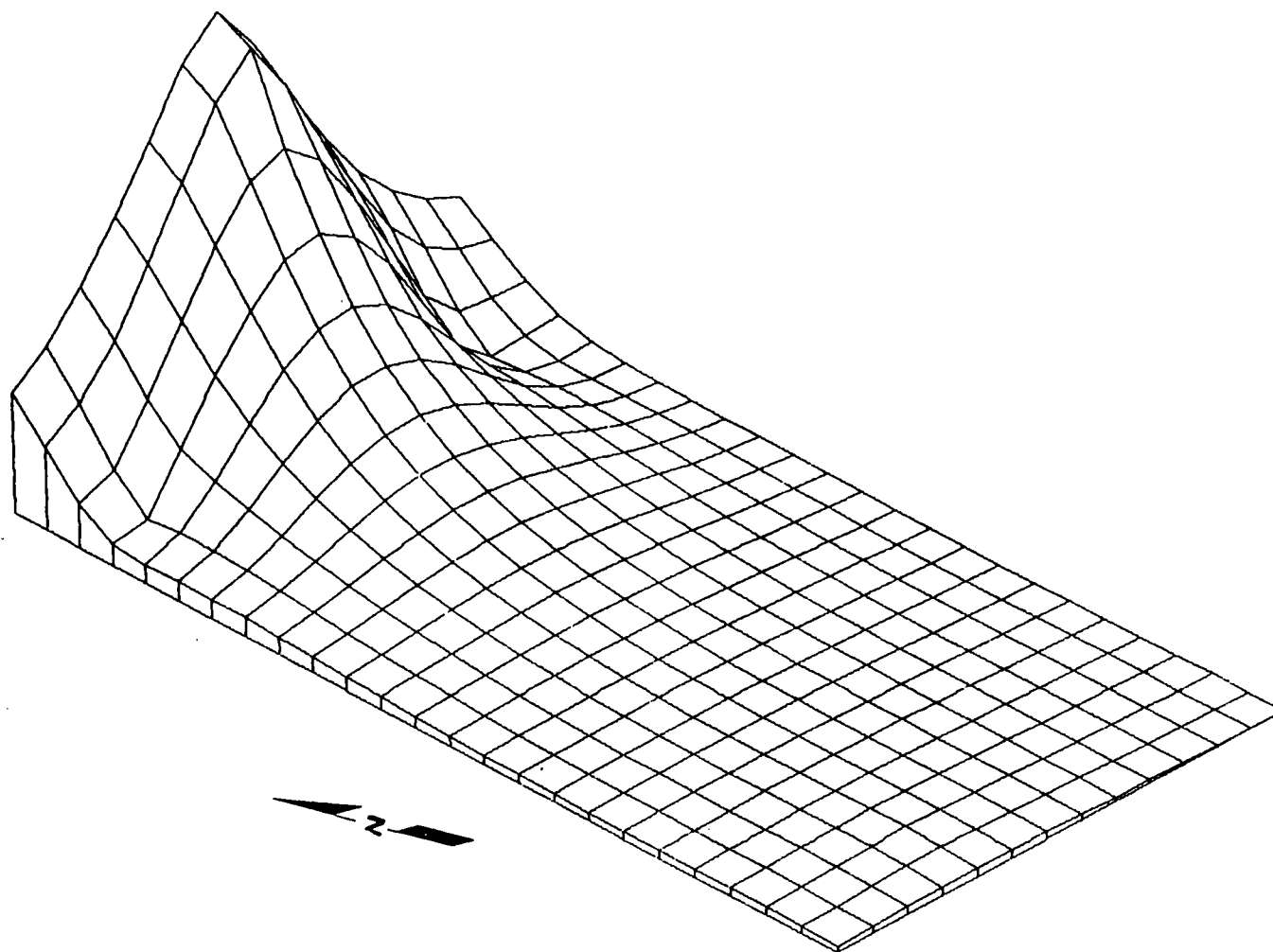
LEAD CONCENTRATIONS IN SOIL SAMPLES - 33 TO 40.5 FT. DEPTH (MG/L)



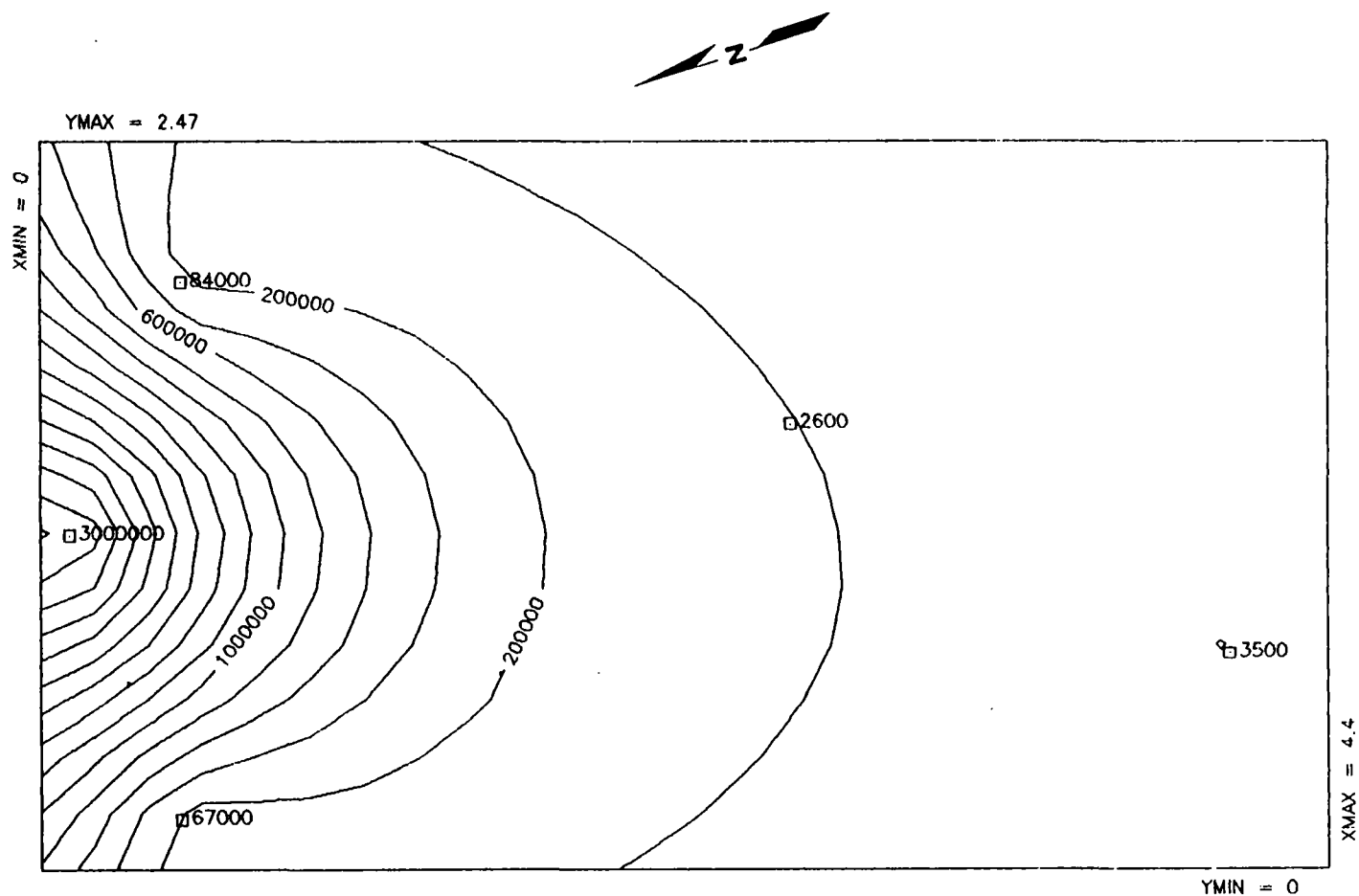
NAPHTHALENE CONCENTRATIONS IN SOIL SAMPLES - 0 TO 5.5 FT. DEPTH (µG/L)



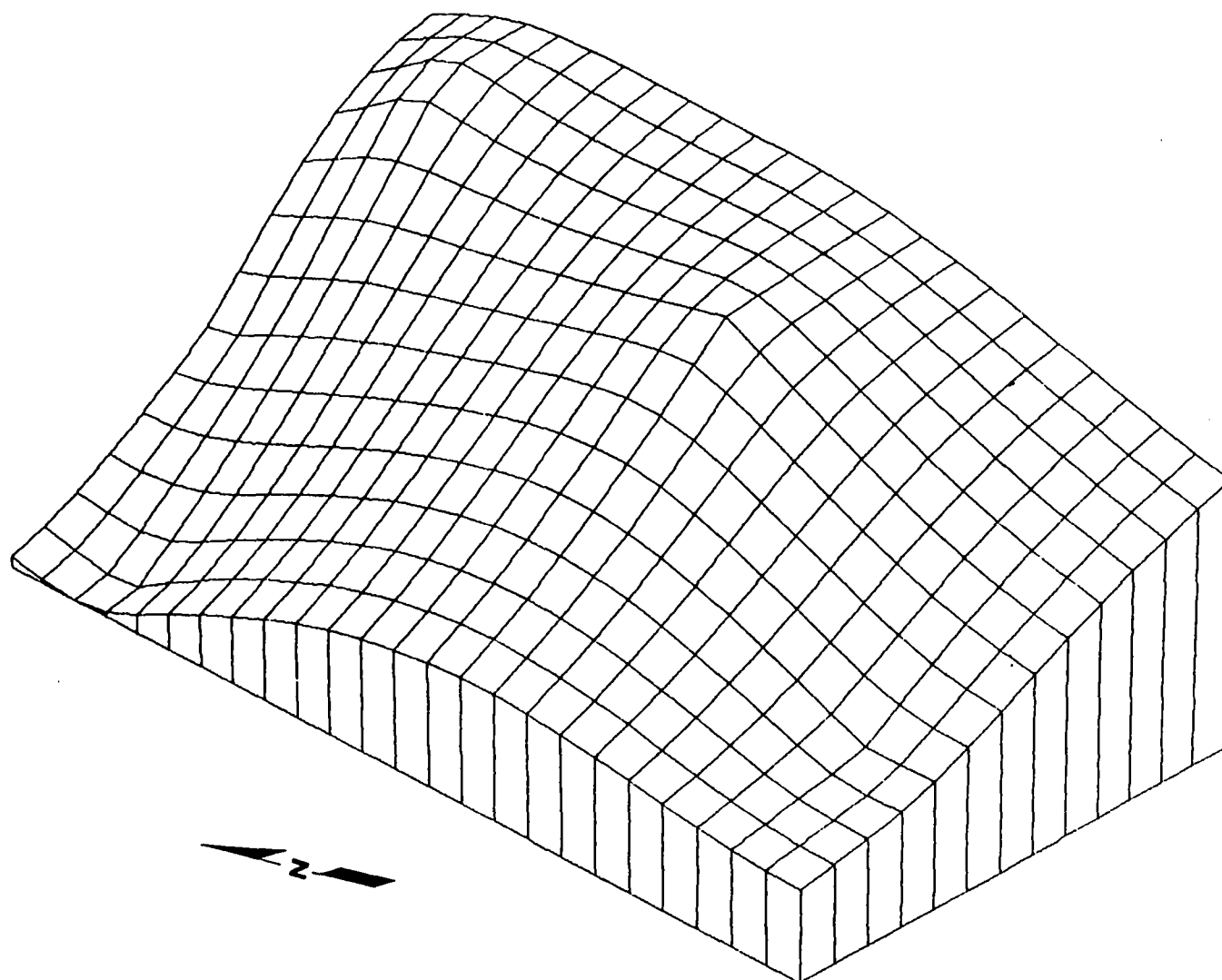
NAPHTHALENE CONCENTRATIONS IN SOIL SAMPLES - 0 TO 5.5 FT. ($\mu\text{G/L}$)



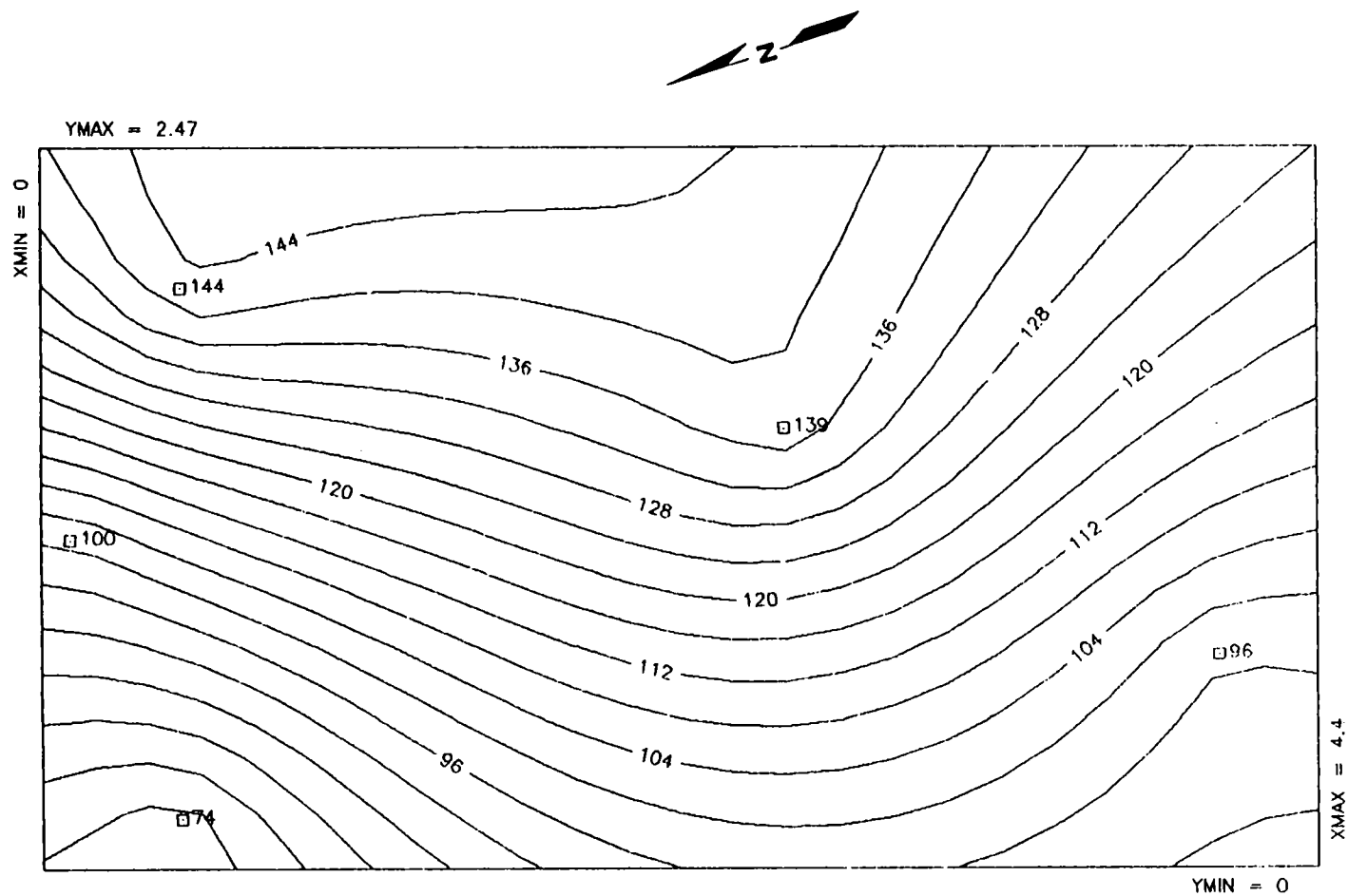
NAPHTHALENE CONCENTRATIONS IN SOIL SAMPLES - 33 TO 40.5 FT. DEPTH ($\mu\text{G/L}$)



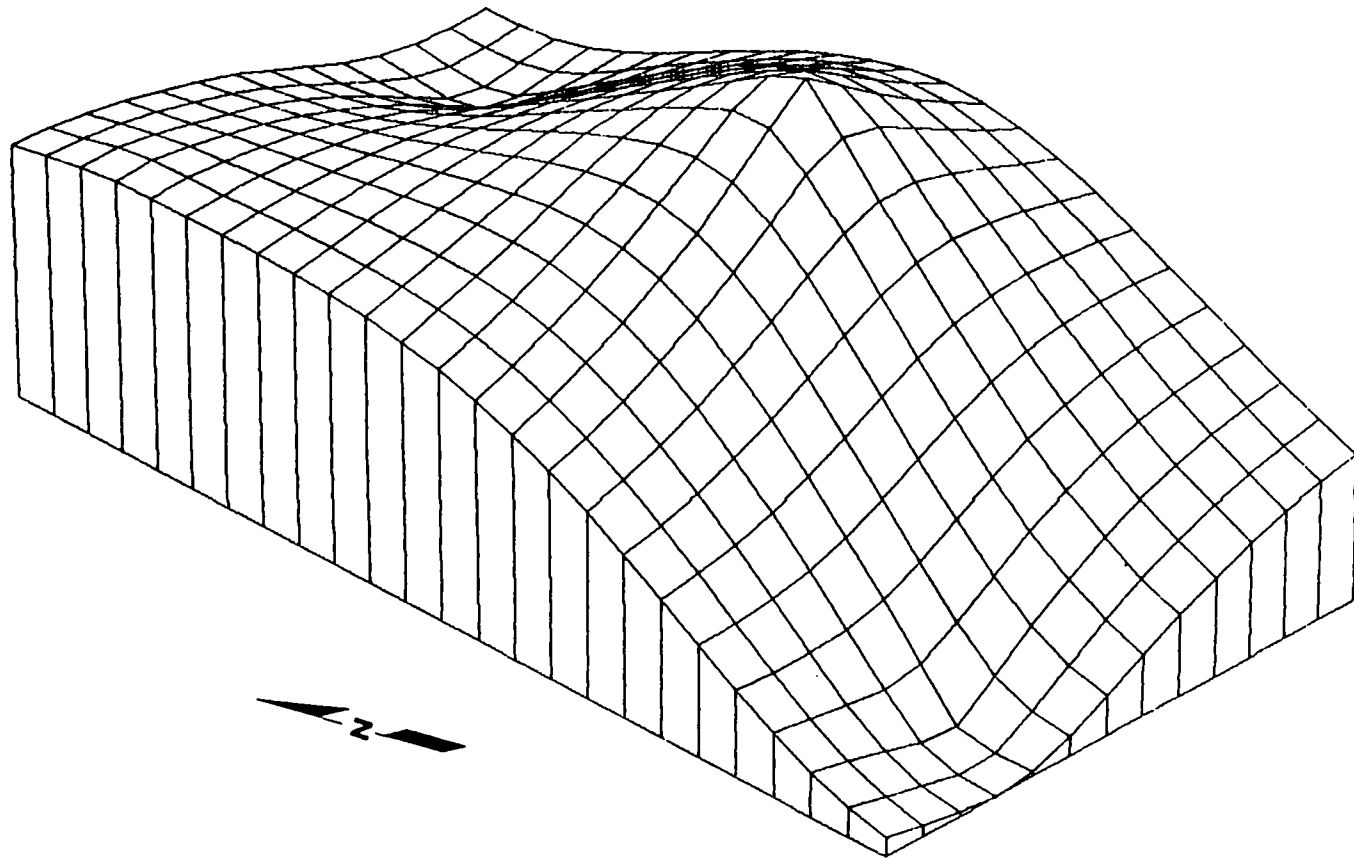
NAPHTHALENE CONCENTRATIONS IN SOIL SAMPLES - 33 TO 40.5 FT. DEPTH ($\mu\text{G/L}$)



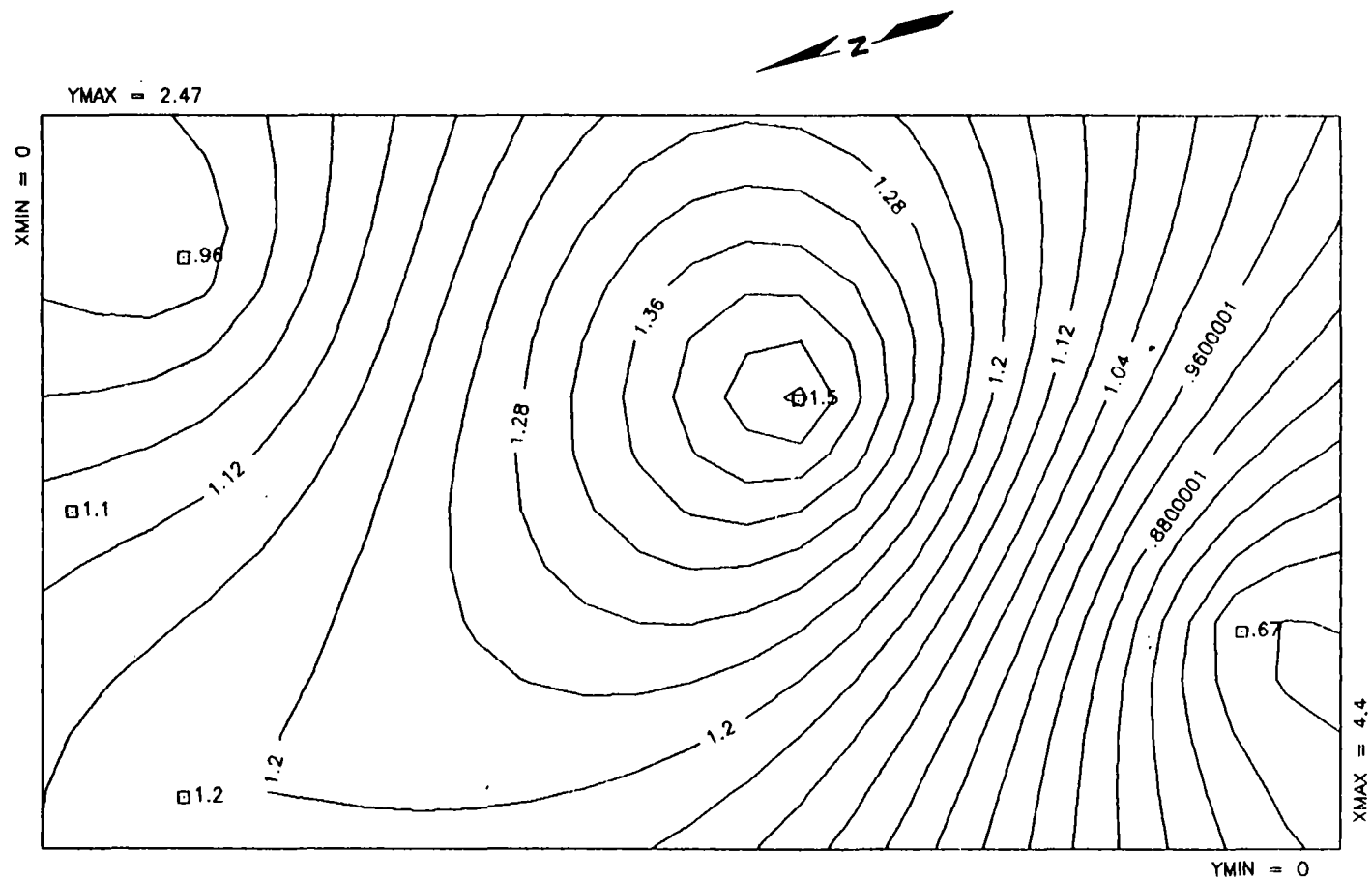
CHLORIDE CONCENTRATIONS IN GROUND WATER SAMPLES (MG/L)



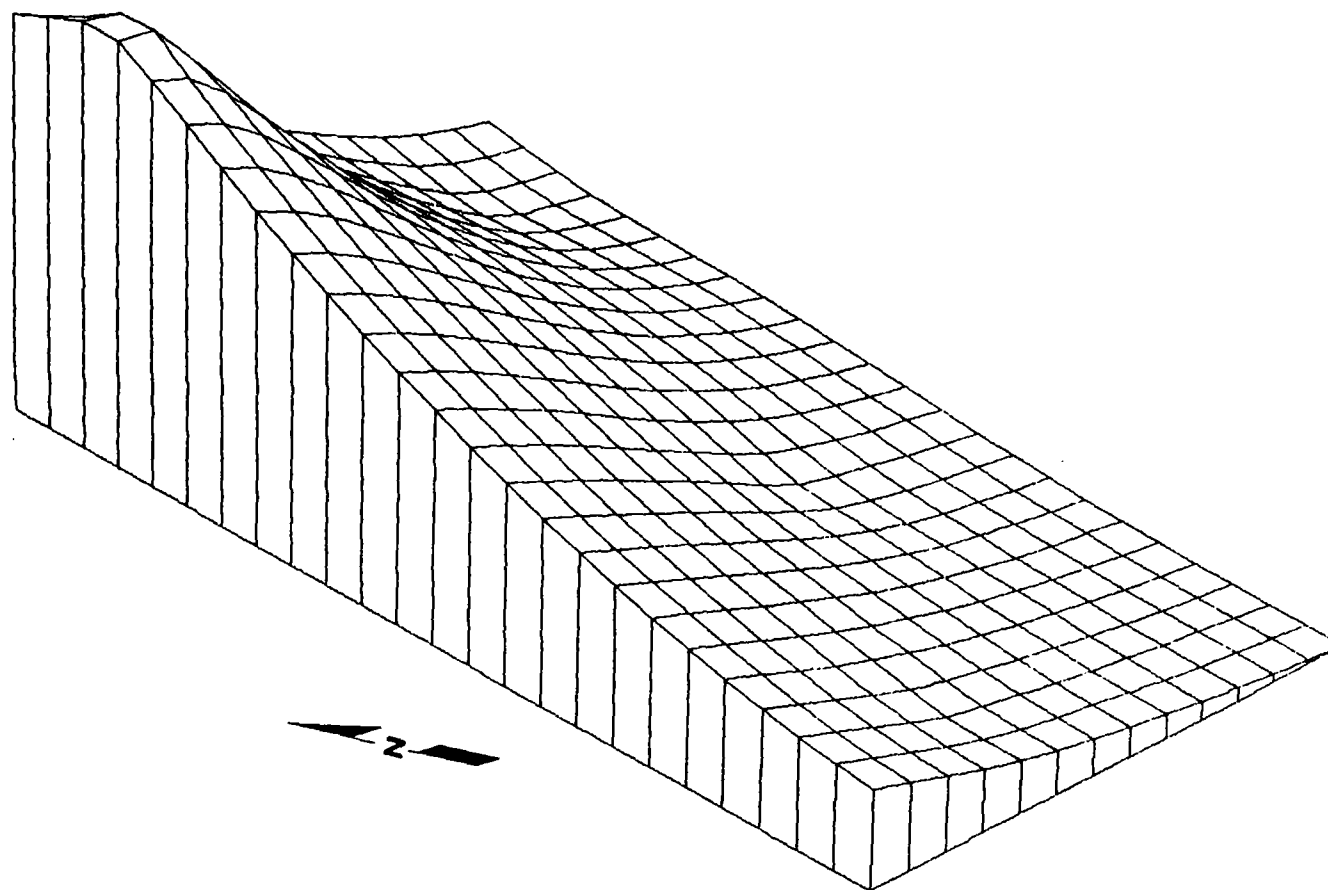
CHLORIDE CONCENTRAIONS IN GROUND WATER SAMPLES (MG/L)



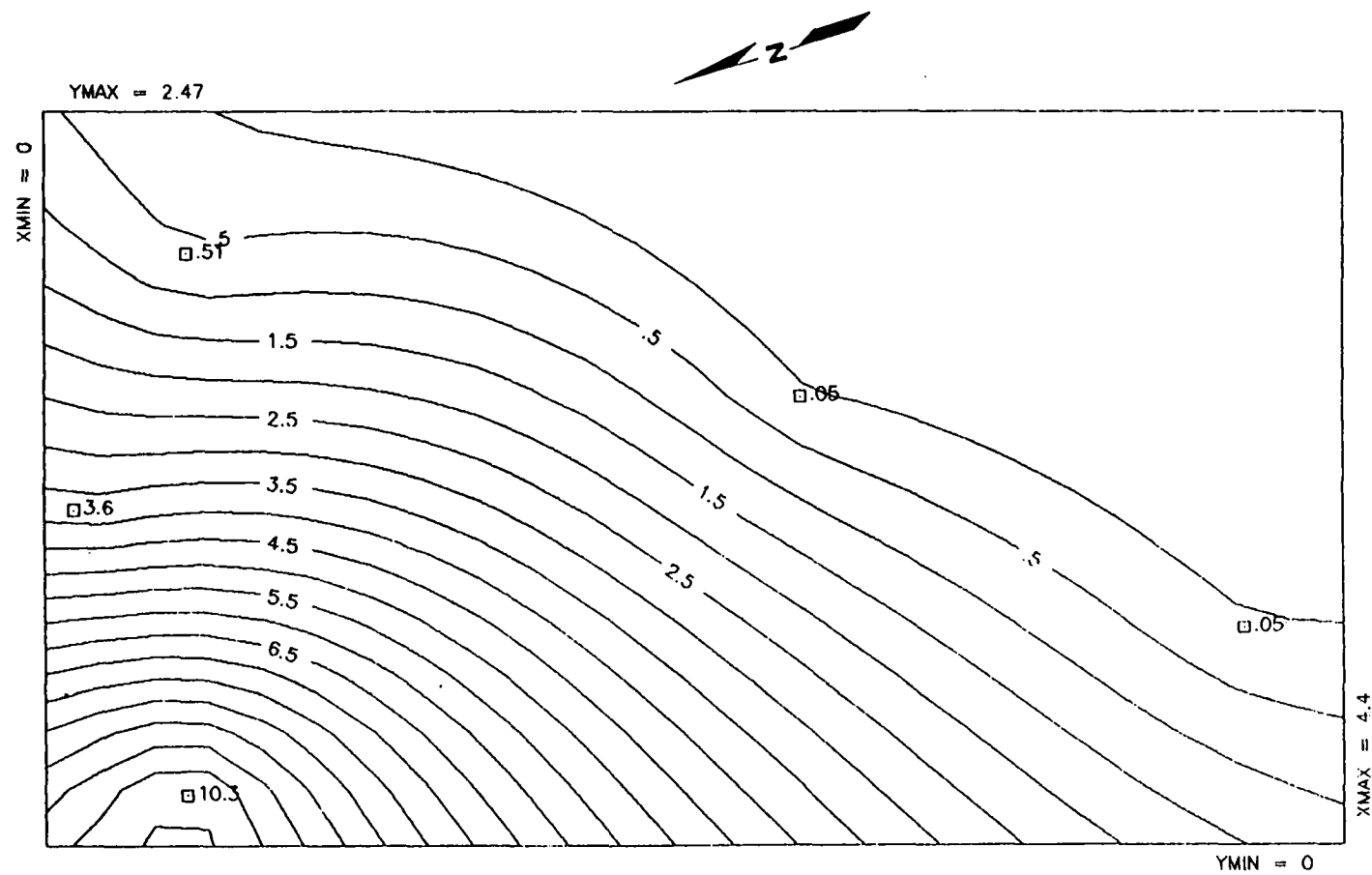
MANGANESE CONCENTRAITONS IN GROUND WATER SAMPLES (MG/L)



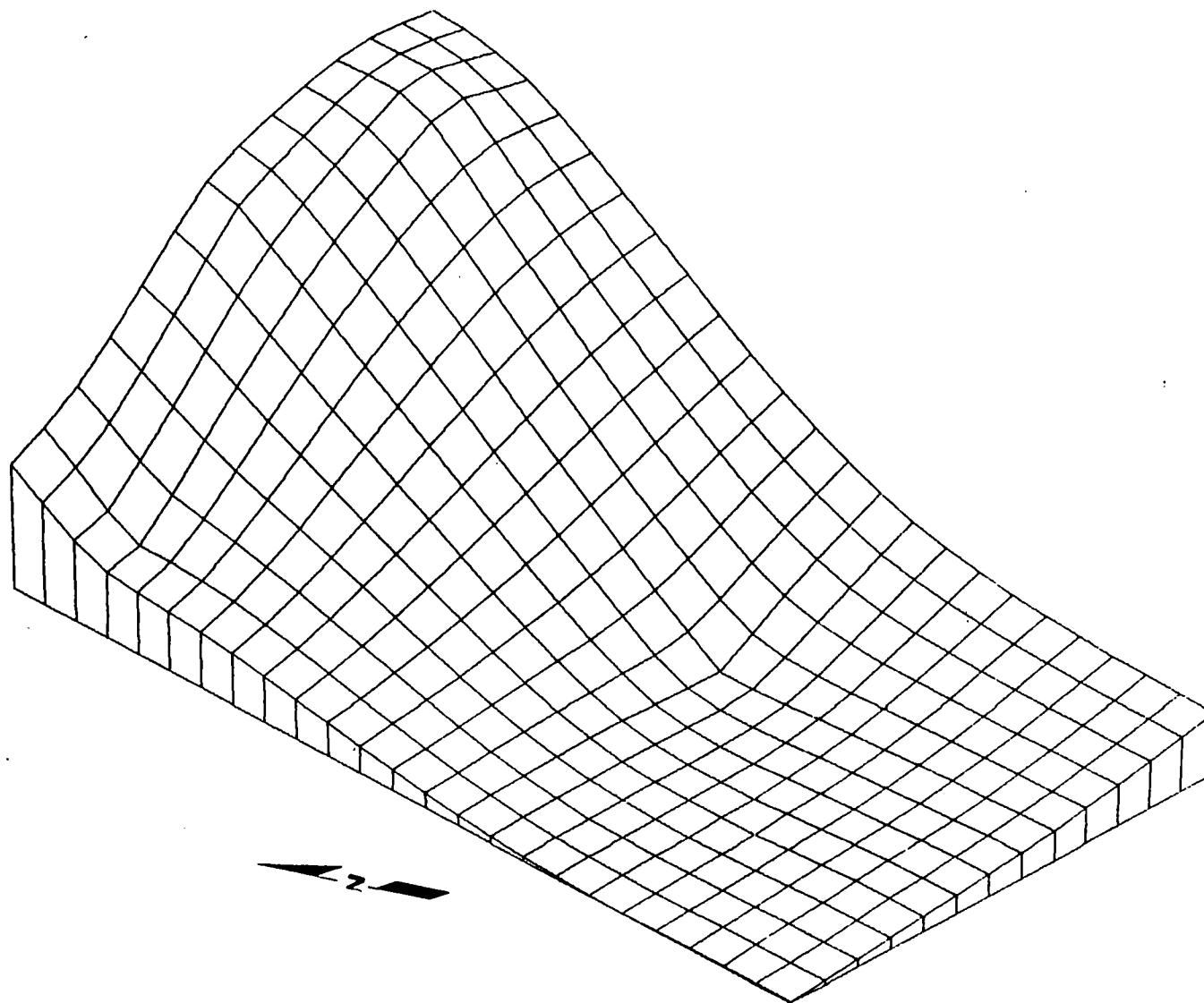
MANGANESE CONCENTRATIONS IN GROUND WATER SAMPLES (MG/L)



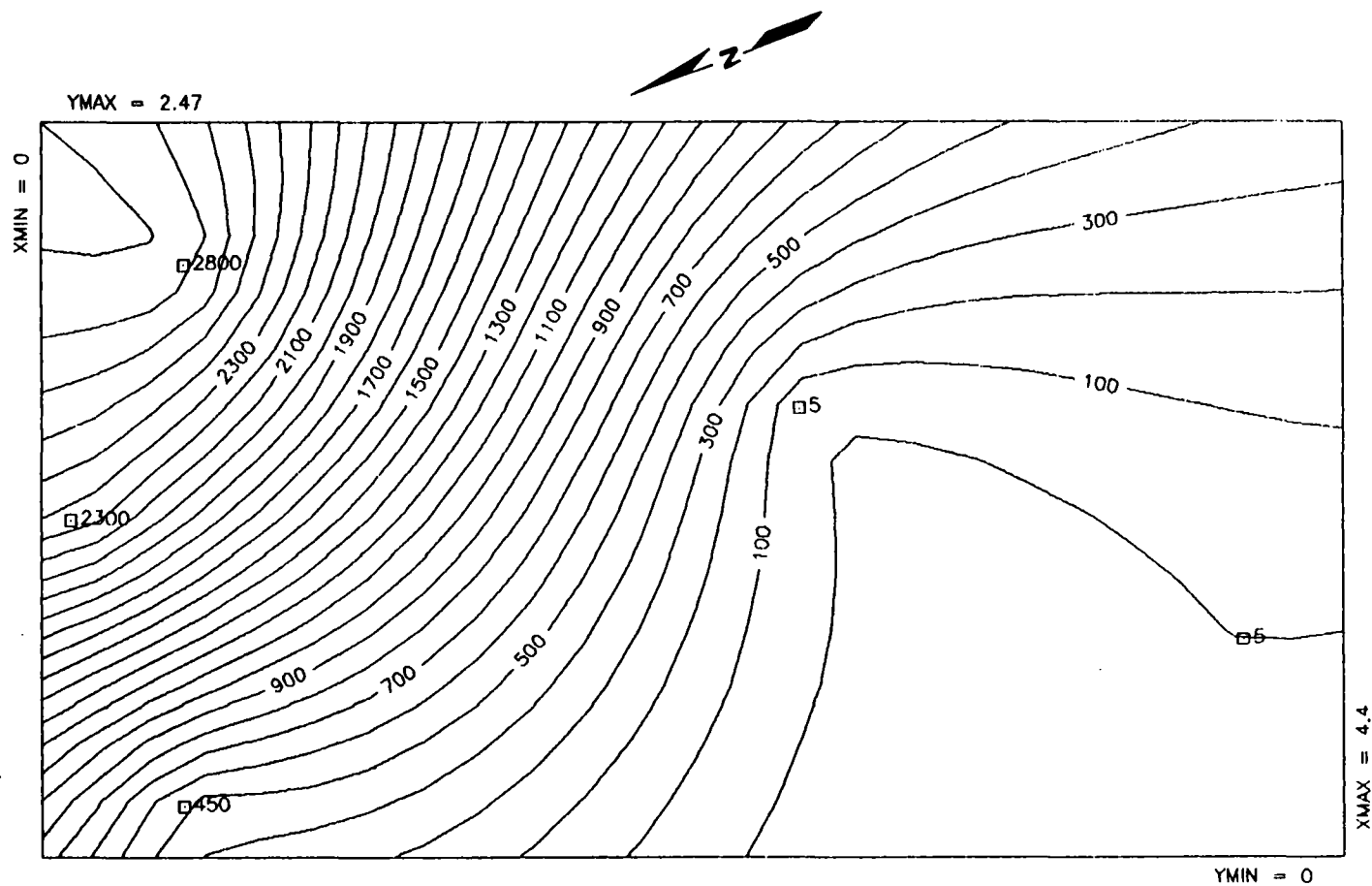
PHENOLICS CONCENTRATIONS IN GROUND WATER SAMPLES (MG/L)



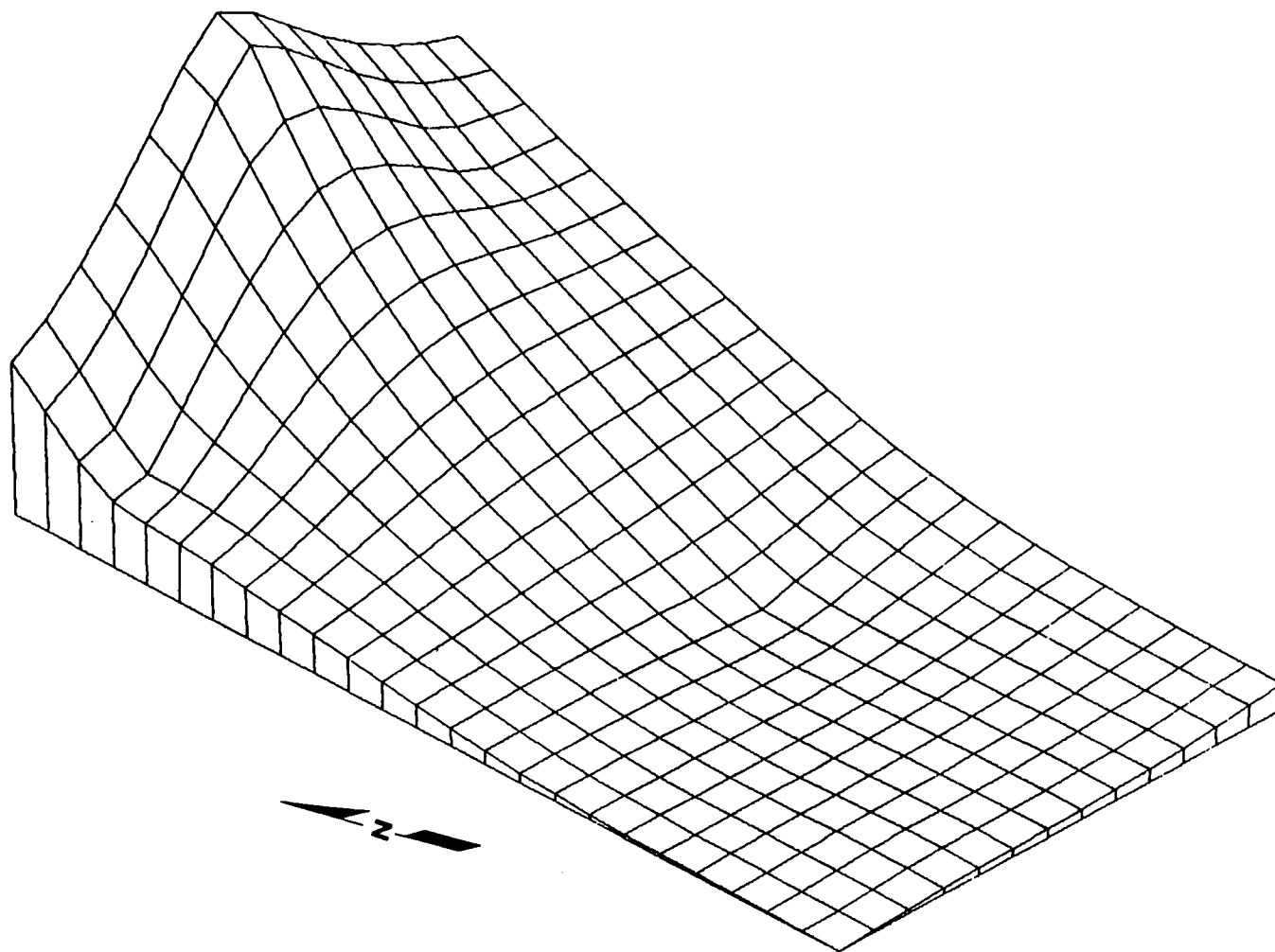
PHENOLICS CONCENTRATIONS IN GROUND WATER SAMPLES (MG/L)



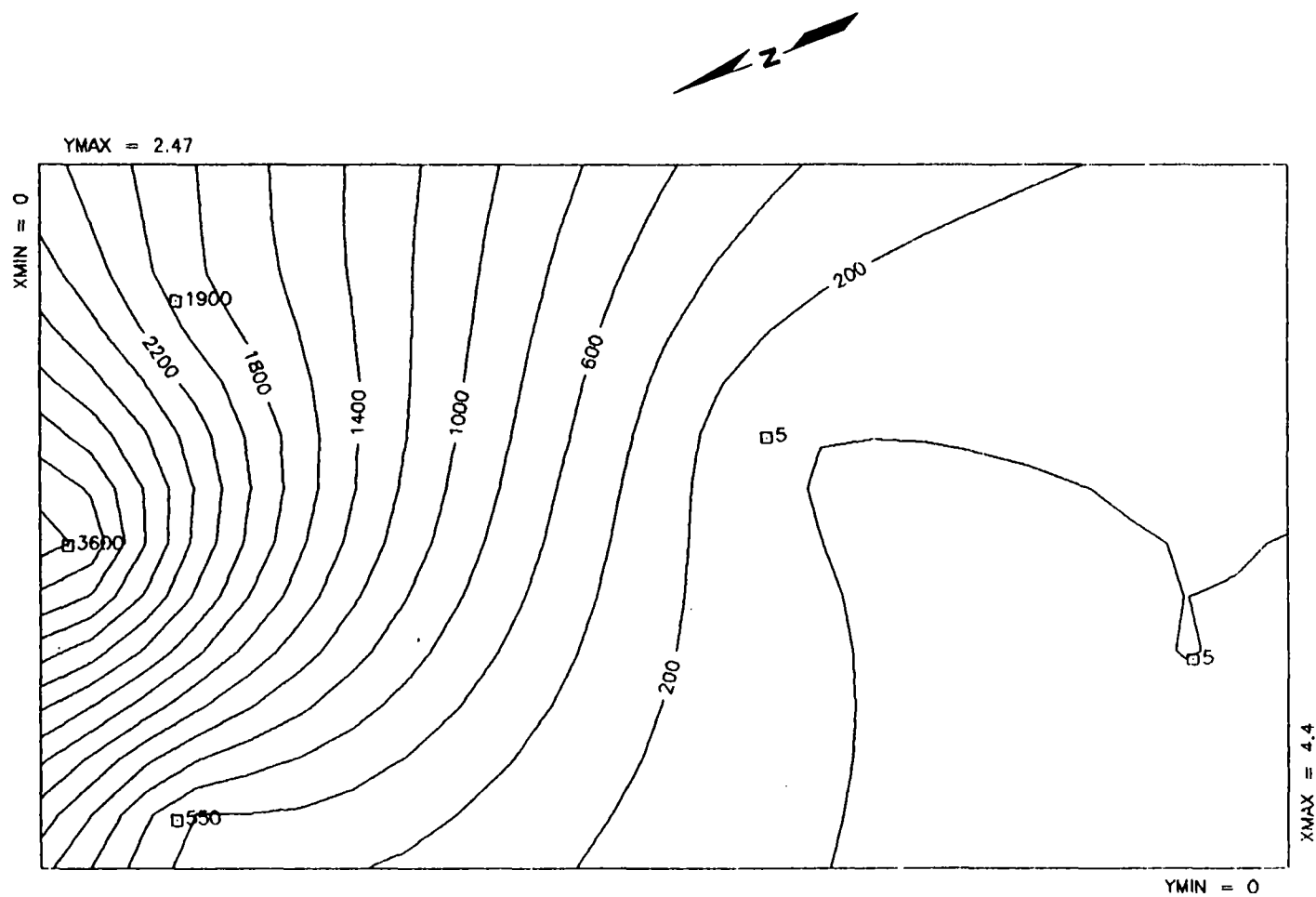
BENZENE CONCENTRATIONS IN GROUND WATER SAMLES ($\mu\text{G/L}$)



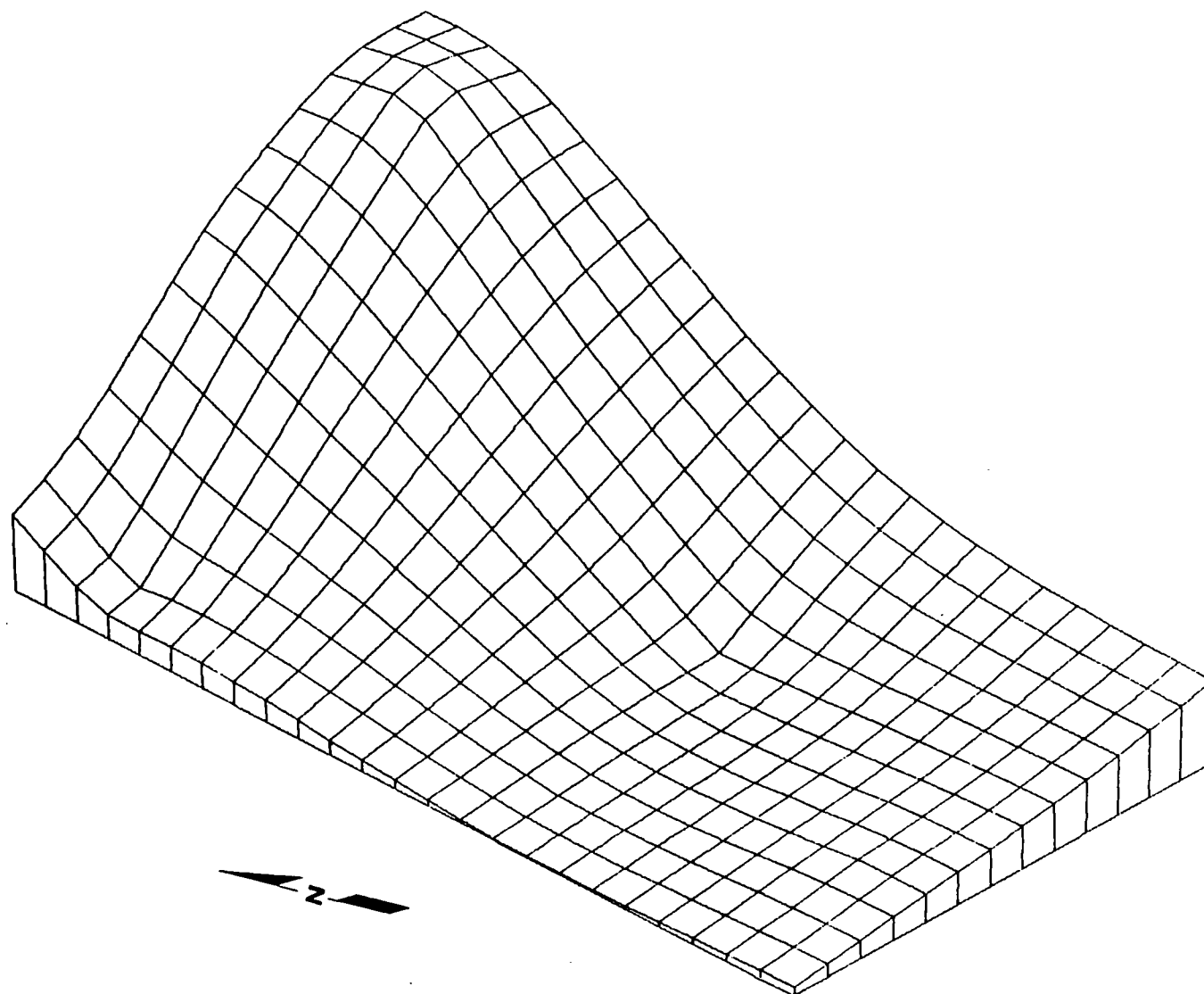
BENZENE CONCENTRATIONS IN GROUND WATER SAMPLES ($\mu\text{g/L}$)



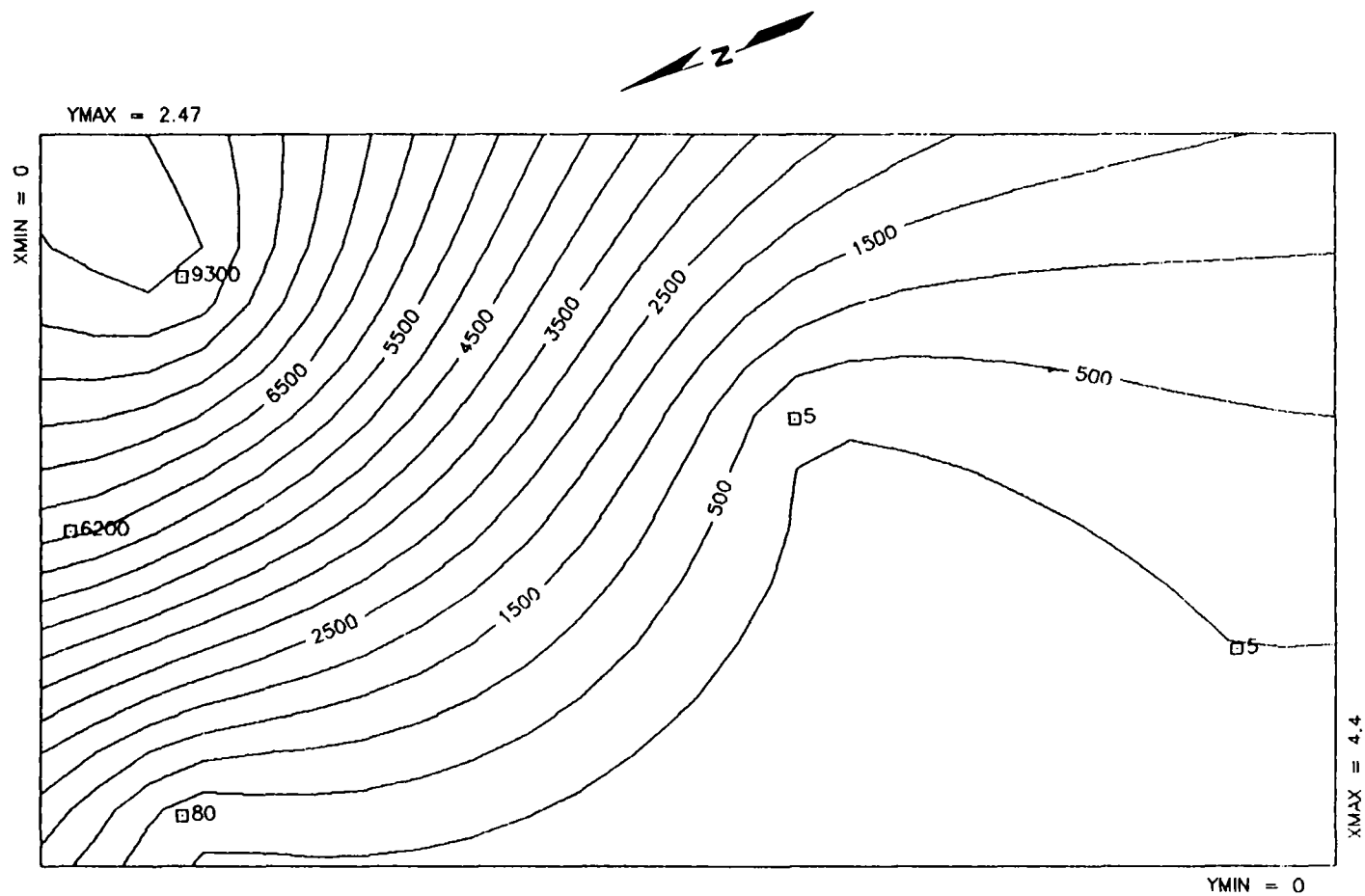
TOLUENE CONCENTRATIONS IN GROUND WATER SAMPLES ($\mu\text{G/L}$)



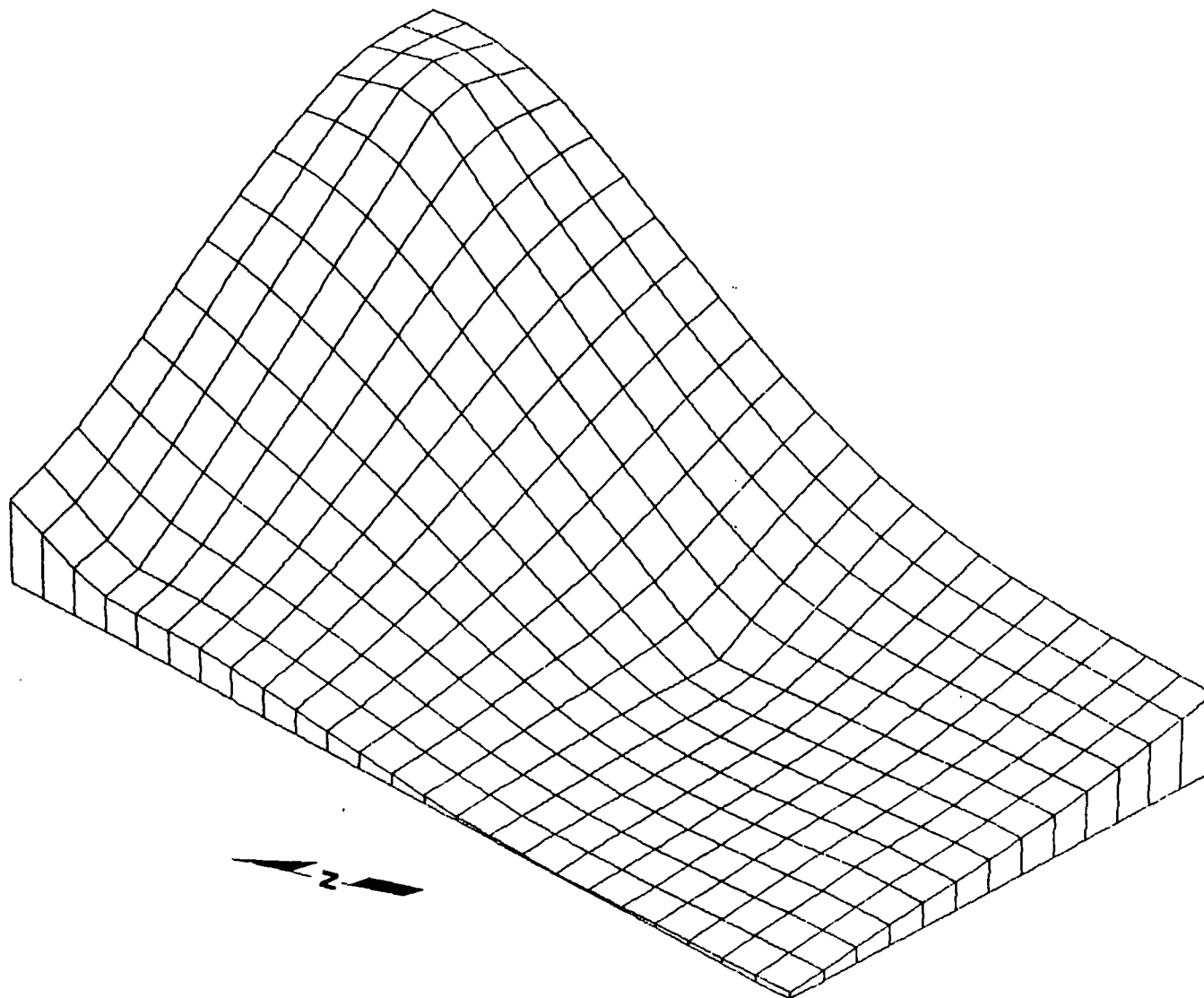
TOLUENE CONCENTRATIONS IN GROUND WATER SAMPLES ($\mu\text{g/L}$)



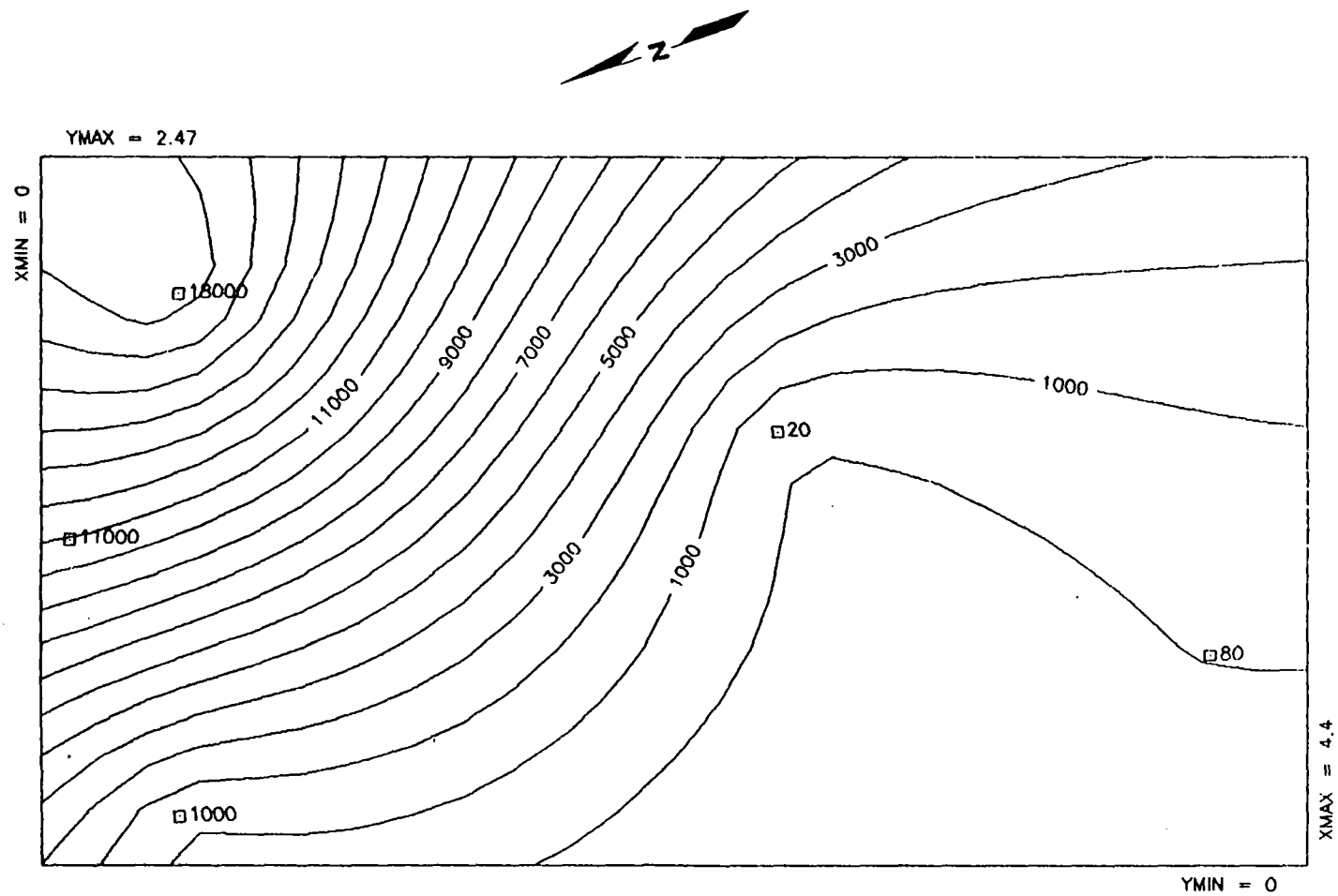
ETHYLBENZENE CONCENTRATIONS IN GROUND WATER SAMPLES ($\mu\text{G/L}$)



ETHYLBENZENE CONCENTRATIONS IN GROUND WATER SAMPLES ($\mu\text{g/L}$)



NAPHTHALENE CONCENTRATIONS IN GROUND WATER SAMPLES ($\mu\text{G/L}$)



NAPHTHALENE CONCENTRATIONS IN GROUND WATER SAMPLES ($\mu\text{g/L}$)

APPENDIX D

BORING LOGS

MW-1	MONITOR WELL 1
MW-2	MONITOR WELL 2
MW-3	MONITOR WELL 3
MW-4	MONITOR WELL 4
MW-5	MONITOR WELL 5

SOIL TEST BORING RECORD

LAW ENGINEERING TESTING COMPANY HOUSTON, TEXAS						BORING NUMBER: MW-1		SHEET 1 OF 1	
EQUIPMENT & METHODS: Power Auger Hollow Stem with Split Spoon Sampler						LOCATION: 100 Congress Avenue Site Austin, Texas			
CLIENT/OWNER: Metropolitan/Lincoln Properties			GROUND LEVEL: 470.29'		COORDINATES: N/A		DATE: APR 1987		

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS				PL (X) NM (X) LL (X) +-----○-----+ ⊗ ⊕ COHESION (100 psf) ● PENETRATION (bpf)												
				DEPTH (ft)	SAMPLE NO.	TEST		10	20	30	40	50	60	70	80	90				
						dd	pf													
Stiff to Very Stiff, Buff and Tan to Brown and Dark Brown Mottled Silty CLAY Fill Material with Gravel to Pebble Size Aggregates. Dry Soil. Oily Odor and Stain. Firm, Reddish Brown Alternating Clayey SILTS to Silty CLAYS with Occasional Thin Fine Sand Laminæ. Dry Soil.		0.0	470.3	1.0	1															
		2.5	467.8	3.0	2															
		5.0		5.0	3															
		7.0		7.0	4															
		9.0		9.0	5															
		14.0		14.0	6															
		19.0		19.0	7															
		24.0		24.0	8															
		29.0		29.0	9															
Dense to Very Dense, Multicolored, Coarse Clastics Ranging from Medium SAND to Coarse Gravel with 3" Coal Chip Laminæ above 38'. Bottom 2' to 3' Water Saturated. Bottom 1' Oily Coating and Odor with Faint Oily Odor Above.		30.0	440.3	34.0	10															
		36.0		36.0	11															
		38.0		38.0	12															
		40.0		40.0	13															
Very Hard, Yellowish Brown Damp CLAY		39.4	434.9																	
Very Hard, Black to Dark Gray Fissile Dry Shale.		43.5	426.8																	

REMARKS: Boring Terminated at 43.5 ft. (HNU Values) Laboratory Analysis: Sample 13		DRILLED BY: SJL/JAP		DATE STARTED: 04-16-87	
		LOGGED BY: KLP		DATE COMPLETED: 04-16-87	
		CHECKED BY: KLP		JOB NUMBER: HT-2080-87H	

SOIL TEST BORING RECORD

LAW ENGINEERING TESTING COMPANY HOUSTON, TEXAS						BORING NUMBER: MM-2		SHEET 1 OF 1			
EQUIPMENT & METHODS: Power Auger Hollow Stem with Split Spoon Sampler						LOCATION: 100 Congress Avenue Site Austin, Texas					
CLIENT/OWNER: Metropolitan/Lincoln Properties				GROUND LEVEL: 470.81'		COORDINATES: N/A		DATE: APR 1987			

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS				PL (%) NM (%) LL (%) +-----○-----+ ⊗ ⊕ COHESION (100 psf) ● PENETRATION (dpf)												
				DEPTH (ft)	SAMPLE		TEST													
					TYPE	NO.	dd	pf												
Firm to Stiff, Buff and Tan to Light Brown, Silty CLAY Fill with Gravel and Pebble Size Aggregates and Calcareous Nodules. Dry Soil.	/	0.0	470.8	1.0		1														
		2.5	468.3	3.0		2														
		5.0		5.0		3														
		7.0		7.0		4														
		9.0		9.0		5														
Hard, Dark Gray and Black Silty CLAY with Calcareous Nodules in Upper 4". 4" of Hard, Reddish Brown Iron Oxide Beginning @ 4 1/2' with 2" Black Coal Above and 7" of Black Coal below it. Soils Very Coaly From 5' to 13'2". Dry Soil. Oily Odor and Stains Throughout.	/	13.2	457.6	14.0		6														
		19.0		19.0		7														
		24.0		24.0		8														
		29.0		29.0		9														
		35.0		35.0		10														
Dense to Very Dense, Multicolored, Coarse Clastics Ranging from Medium SAND to Coarse Gravel. Oily Odor and Stains to 35' then Heavily Coated to 35'5". Bottom 2' to 3' Water Saturated. Faint Oily Odor to 38'6". Saturated with Heavy Black Liquid from 39'5" to 39'10".	.	39.0	431.8	40.0		13														
		40.0		40.0																
		41.0		41.0																
		42.0		42.0																
		43.0		43.0																
Hard, Yellowish Brown Damp CLAY	/	45.0	425.8																	
Very Hard, Black to Dark Gray Fissile Dry Shale.	/																			

REMARKS: (HNU Values) Laboratory Analysis: Composite of Samples 2 & 3 Sample 13	DRILLED BY: <div style="text-align: center;">SUL/JAP</div>	DATE STARTED: <div style="text-align: center;">04-17-87</div>	
	LOGGED BY: <div style="text-align: center;">KLP</div>	DATE COMPLETED: <div style="text-align: center;">04-17-87</div>	
	CHECKED BY: <div style="text-align: center;">KLP</div>	JOB NUMBER: <div style="text-align: center;">HT-2080-87H</div>	

SOIL TEST BORING RECORD

LAW ENGINEERING TESTING COMPANY HOUSTON, TEXAS						BORING NUMBER: MW-3		SHEET 1 OF 1	
EQUIPMENT & METHODS: Power Auger Hollow Stem with Split Spoon Sampler					LOCATION: 100 Congress Avenue Site Austin, Texas				
CLIENT/OWNER: Metropolitan/Lincoln Properties			GROUND LEVEL: 470.79'		COORDINATES: N/A		DATE: APR 1987		

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS				PL (%) MH (%) LL (%) + ----- ○ ----- + ⊗ ⊕ COHESION (100 psf) ● PENETRATION (bpf)												
				DEPTH (ft)	SAMPLE		TEST		10	20	30	40	50	60	70	80	90			
					TYPE	NO.	dd	pf												
Firm, Tan to Reddish Brown Silty CLAY and Clayey SILT Fill with Pebble Size Aggregates. Dry Soil. Loose to Firm, Reddish Brown Alternating Clayey SILTS and Silty CLAYS with Occasional Thin Fine to Medium Sand Laminas with some Coal Chips, Calcareous Nodules, and Clay Nodules in Upper 1/3 and Occasional Gravel and Pebbles Near 19'. Dry Soil. Oily Stains and Odor.		0.0	470.8	1.0		1														
		2.0	468.8	3.0		2														
				5.0		3														
				7.0		4														
				9.0		5														
				14.0		6														
				19.0		7														
				24.0		8														
				29.0		9														
Dense to Very Dense, Multicolored, Coarse Clastics Ranging from Medium SAND to Coarse Gravel. Bottom 2-3' Water Saturated. Heavy Oily Coating and Odor. Bottom 6" Saturated with Oily Liquid.		30.0	440.8	34.0		10														
				36.0		11														
				38.0		12														
				40.0		13														
Hard, Yellowish Brown Damp CLAY		40.0	434.3																	
Very Hard, Black to Dark Gray Fissile Dry Shale.		44.0	426.8																	

REMARKS: Boring Terminated at 44.0 ft. (HNU Values) Laboratory Analysis: Composite of Samples 2 & 3. Composite of Samples 8 & 9. Composite of Samples 11, 12 & 13.	DRILLED BY: SJL/JAP	DATE STARTED: 04-15-87
	LOGGED BY: KLP	DATE COMPLETED: 04-15-87
	CHECKED BY: KLP	JOB NUMBER: HT-2080-87H

SOIL TEST BORING RECORD

LAW ENGINEERING TESTING COMPANY HOUSTON, TEXAS				BORING NUMBER: MN-4		SHEET 1 OF 1	
EQUIPMENT & METHODS: Power Auger Hollow Stem With Split Spoon Sampler				LOCATION: 100 Congress Avenue Site Austin, Texas			
CLIENT/OWNER: Metropolitan/Lincoln Properties		GROUND LEVEL: 470.19'		COORDINATES: N/A		DATE: APR 1987	

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS				PL (%) NM (%) LL (%) +-----○-----+ ⊗ ⊕ COHESION (100 psf) ● PENETRATION (dpf)										
				DEPTH (ft)	TYPE	NO.	TEST		10	20	30	40	50	60	70	80	90	
							cu	pf										
Hard, Light Gray and Buff to Light Reddish Brown Silty CLAY and Sandy, Clayey SILT Fill with Concrete Fragments. Dry Soil.		1.0	470.2			1												
		3.0	468.2			2												
		5.0				3												
		7.0				4												
		9.0				5												
Loose to Dense Reddish Brown Alternating Clayey SILTS and Silty CLAYS with Some Calcareous Nodules and Pebble Aggregates in Upper 1/3. Occasional Dark Organic Layers. Dry Soil.		14.0				6												
		19.0				7												
		24.0				8												
		29.0				9												
		34.0				10												
Dense, Multicolored Coarse Clastics Ranging From Medium SAND to Coarse Gravel. Moist Soil. Oily Coating and Odor.		35.0	440.2															
Hard, Yellowish Brown Damp CLAY With Thin Reddish Brown Laminas.		36.0	434.3			11												
Very Hard, Black to Dark Gray Fissile Dry Shale.		40.5	429.7															
Boring Terminated at 40.5 ft.																		

REMARKS: (HNU Values) Laboratory Analysis: Composite of Samples 2 & 3 Sample 9 Composite of Samples 10 & 11	DRILLED BY: <div style="text-align: center;">SJL/JAP</div>	DATE STARTED: <div style="text-align: center;">04-15-87</div>	
	LOGGED BY: <div style="text-align: center;">KLP</div>	DATE COMPLETED: <div style="text-align: center;">04-15-87</div>	
	CHECKED BY: <div style="text-align: center;">KLP</div>	JOB NUMBER: <div style="text-align: center;">HT-2080-87H</div>	

SOIL TEST BORING RECORD

LAW ENGINEERING TESTING COMPANY HOUSTON, TEXAS						BORING NUMBER: NW-5		SHEET 1 OF 1	
EQUIPMENT & METHODS: <i>Power Auger</i> <i>Hollow Stem with Split Spoon Sampler</i>						LOCATION: <i>100 Congress Avenue Site</i> <i>Austin, Texas</i>			
CLIENT/OWNER: <i>Metropolitan/Lincoln Properties</i>			GROUND LEVEL: 458.79'		COORDINATES: N/A		DATE: APR 1987		

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS				PL (%) NM (%) LL (%) +-----○-----+ ⊗ ⊕ COHESION (100 psf) ● PENETRATION (bpf)												
				DEPTH (ft)	SAMPLE		TEST		10	20	30	40	50	60	70	80	90			
					TYPE	NO.	dd	pf												
<i>Very Stiff, Light Brown to Reddish Brown Clayey SILT Fill With Concrete Aggregates and 5" Coal Chip Layer. Dry Soil.</i> <i>Stiff to Very Stiff, Reddish Brown Alternating Clayey SILTS and Silty CLAYS With Occasional Fine Sand Laminas. Dry Soil.</i>		0.0	458.8	1.0		1														
		2.0	456.8	3.0		2														
		5.0		5.0		3														
		7.0		7.0		4														
		9.0		9.0		5														
		14.0		14.0		6														
		19.0		19.0		7														
		24.0		24.0		8														
		29.0		29.0		9														
<i>Very Dense, Multicolored, Coarse Clastics Ranging From Medium SAND to Cobbles. Bottom 2' to 3' Water Saturated. Oily Odor and Stain</i>		30.0	438.8																	
		34.0		34.0		10														
<i>Very Hard, Yellowish Brown Damp CLAY</i> <i>Hard, Black To Dark Gray Fissile Dry Shale</i>		35.0	439.5																	
		38.0		38.0		12														
Boring Terminated at 40.0 ft.																				

REMARKS: <i>(HNU Values)</i> Laboratory Analysis: Composite of Samples 10 & 11	DRILLED BY: SJL/JAP		DATE STARTED: 04-14-87	
	LOGGED BY: KLP		DATE COMPLETED: 04-14-87	
	CHECKED BY: KLP		JOB NUMBER: HT-2080-87H	

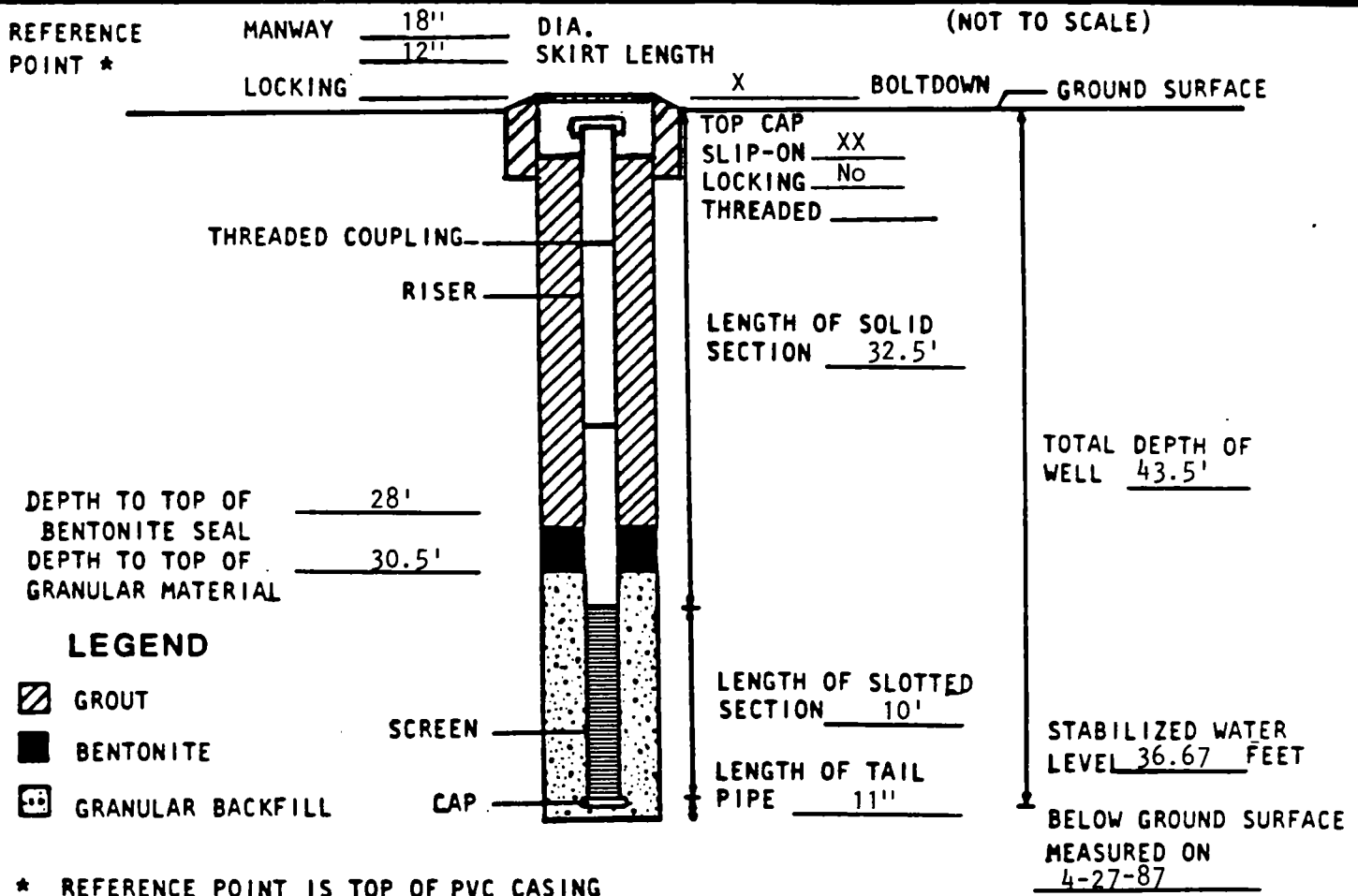
APPENDIX E

WELL INSTALLATION RECORDS

MW-1	MONITOR WELL 1
MW-2	MONITOR WELL 2
MW-3	MONITOR WELL 3
MW-4	MONITOR WELL 4
MW-5	MONITOR WELL 5

TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME METROPOLITAN - AUSTIN WELL NUMBER MW-1
 30' from 2nd St. Sidewalk
 JOB NUMBER HT-2080-87H INSTALLATION DATE 4-16-87 LOCATION 10' from Colorado St. Sidewalk
 GROUND SURFACE ELEVATION 470.29' REFERENCE POINT ELEVATION 469.99'
 SCREEN DIAMETER AND MATERIAL 2" PVC SCH 40 SLOT SIZE 0.020"
 RISER DIAMETER AND MATERIAL 2" PVC SCH 40 BOREHOLE DIAMETER 8"
 GRANULAR BACKFILL MATERIAL 12/20 Colo. Silica Sd. LAW ENGINEERING REPRESENTATIVE KLP
 DRILLING TECHNIQUE Hollow Stem Auger DRILLING CONTRACTOR Law Engineering
 LOCK BRAND _____ SIZE/MODEL _____ KEY CODE/COMBINATION _____



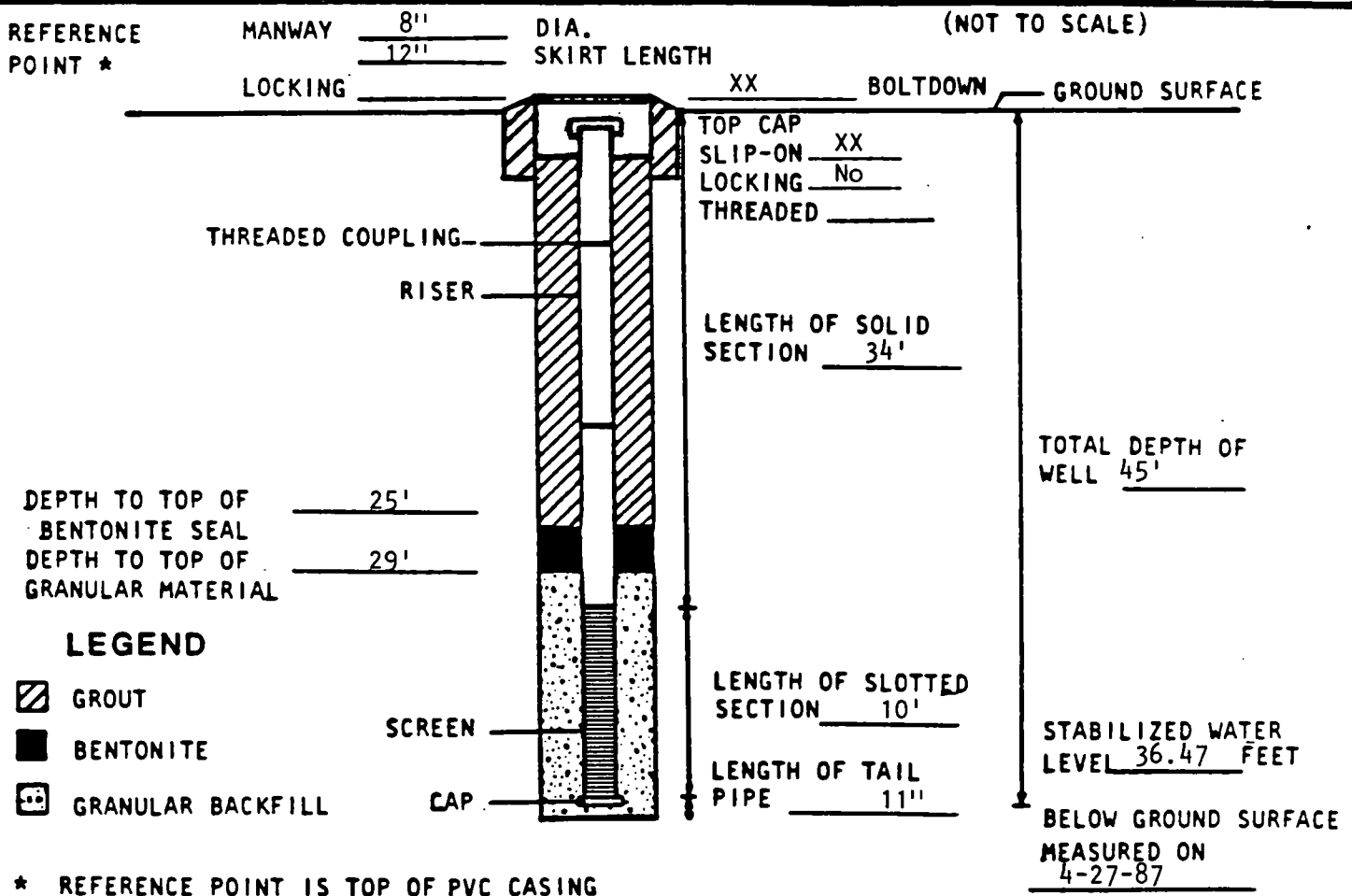
NOTE: All elevations measured on west edge of casing tops & manways. Manway elevations are essentially ground level elevations.



LAW ENGINEERING TESTING COMPANY
 HOUSTON, TEXAS

TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME METROPOLITAN - AUSTIN WELL NUMBER MW-2
6' From 2nd St. Sidewalk
 JOB NUMBER HT-2080-87H INSTALLATION DATE 4-17-87 LOCATION 71' From Colorado St. Sidewalk
 GROUND SURFACE ELEVATION 470.81' REFERENCE POINT ELEVATION 470.58'
 SCREEN DIAMETER AND MATERIAL 2" PVC SCH 40 SLOT SIZE 0.020"
 RISER DIAMETER AND MATERIAL 2" PVC SCH 40 BOREHOLE DIAMETER 8"
 GRANULAR BACKFILL MATERIAL 12/20 Colo. Silica Sd. LAW ENGINEERING REPRESENTATIVE KLP
 DRILLING TECHNIQUE Hollow Stem Auger DRILLING CONTRACTOR Law Engineering
 LOCK BRAND _____ SIZE/MODEL _____ KEY CODE/COMBINATION _____



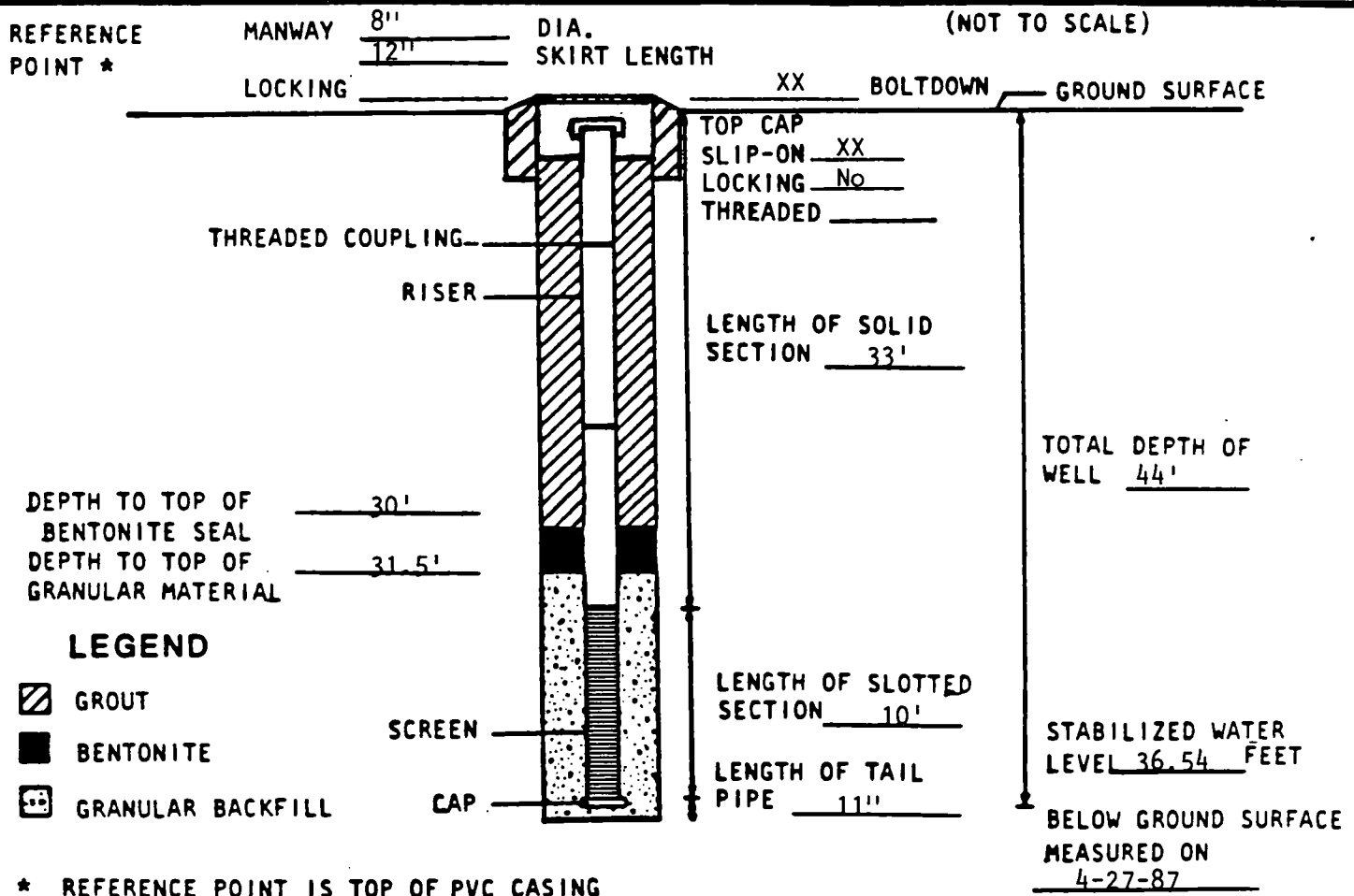
NOTE: All elevations measured on west edge of casing tops & manways. Manway elevations are essentially ground level elevations.



LAW ENGINEERING TESTING COMPANY
 HOUSTON, TEXAS

TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME METROPOLITAN - AUSTIN WELL NUMBER MW-3
 30' From 2nd St. Sidewalk
 JOB NUMBER HT-2080-87H INSTALLATION DATE 4-16-87 LOCATION 30' From Alley Pavement
 GROUND SURFACE ELEVATION 470.79' REFERENCE POINT ELEVATION 470.56'
 SCREEN DIAMETER AND MATERIAL 2" PVC SCH 40 SLOT SIZE 0.020"
 RISER DIAMETER AND MATERIAL 2" PVC SCH 40 BOREHOLE DIAMETER 8"
 GRANULAR BACKFILL MATERIAL 12/20 Colo. Silica Sd. LAW ENGINEERING REPRESENTATIVE KLP
 DRILLING TECHNIQUE Hollow Stem Auger DRILLING CONTRACTOR Law Engineering
 LOCK BRAND _____ SIZE/MODEL _____ KEY CODE/COMBINATION _____



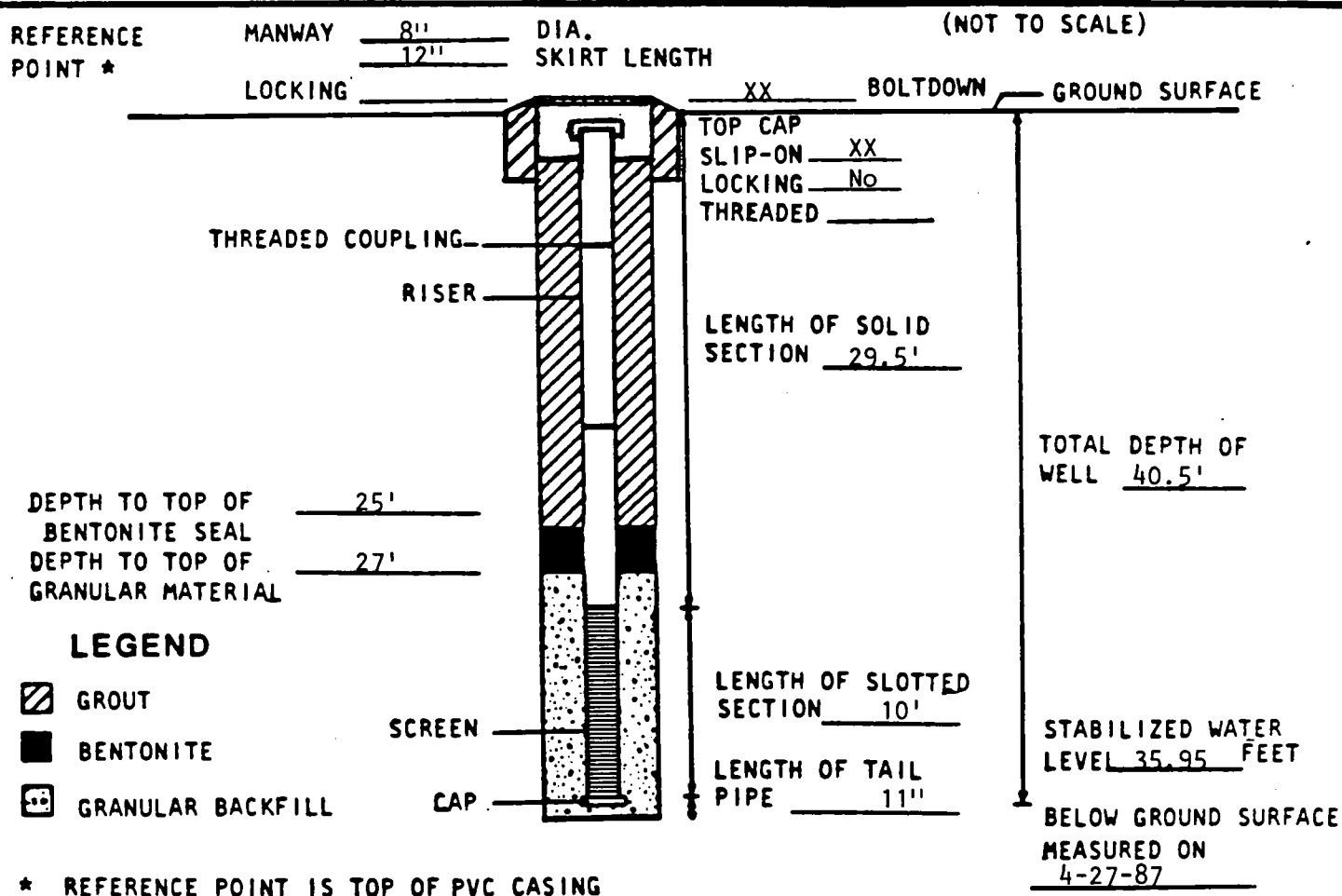
NOTE: All elevations measured on west edge of casing tops & manways. Manway elevations are essentially ground level elevations.



LAW ENGINEERING TESTING COMPANY
 WILSON, TEXAS

TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME METROPOLITAN - AUSTIN WELL NUMBER MW-4
116' From 1st St. Sidewalk
 JOB NUMBER HT-2080-87H INSTALLATION DATE 4-15-87 LOCATION 60' From Alley Pavement
 GROUND SURFACE ELEVATION 470.19' REFERENCE POINT ELEVATION 469.80'
 SCREEN DIAMETER AND MATERIAL 2" PVC SCH 40 SLOT SIZE 0.020"
 RISER DIAMETER AND MATERIAL 2" PVC SCH 40 BOREHOLE DIAMETER 8"
 GRANULAR BACKFILL MATERIAL 12/20 Colo. Silica Sd. LAW ENGINEERING REPRESENTATIVE KLP
 DRILLING TECHNIQUE Hollow Stem Auger DRILLING CONTRACTOR Law Engineering
 LOCK BRAND _____ SIZE/MODEL _____ KEY CODE/COMBINATION _____



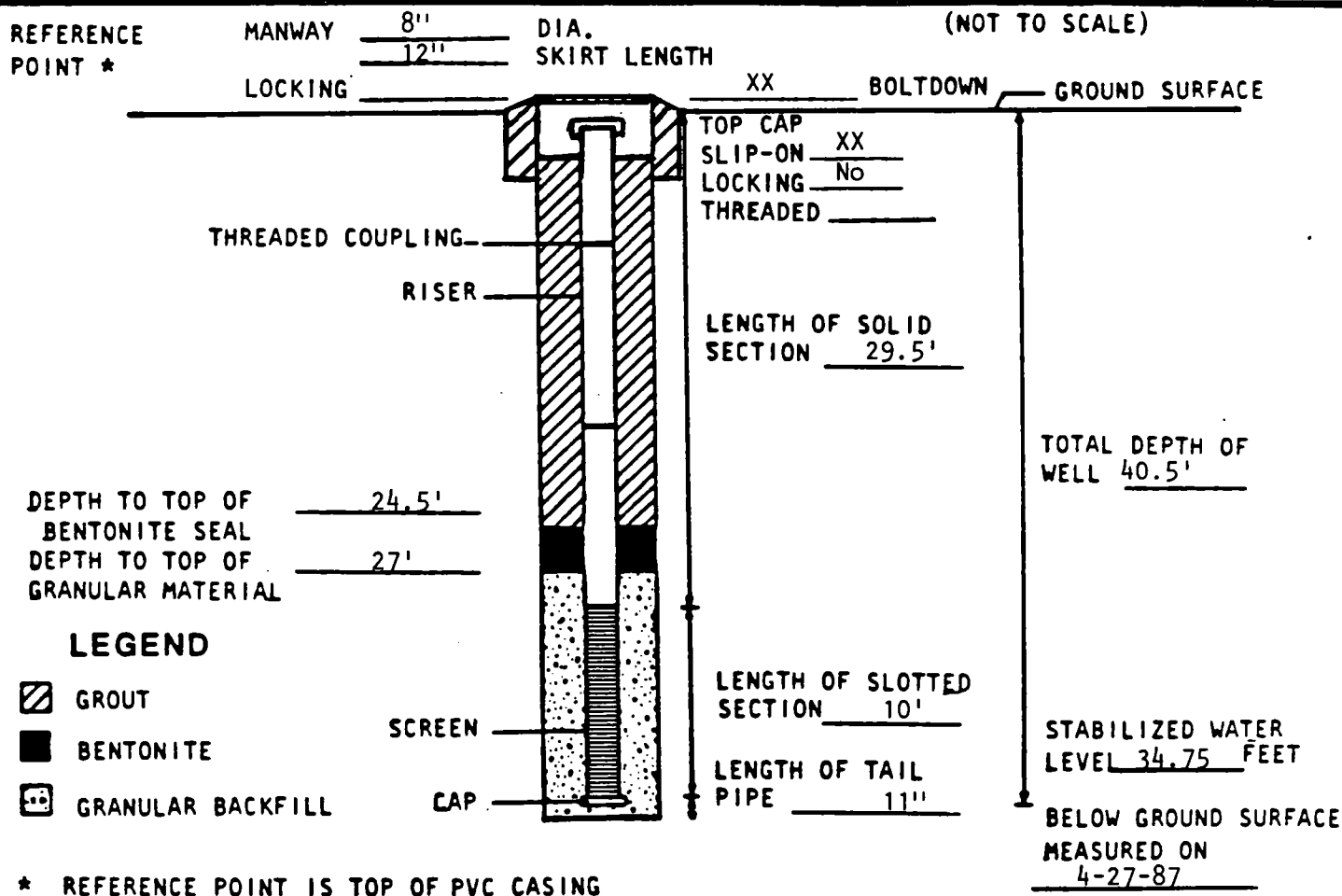
NOTE: All elevations measured on west edge of casing tops & manways. Manway elevations are essentially ground level elevations.



LAW ENGINEERING TESTING COMPANY
 WILSON, TEXAS

TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME METROPOLITAN - AUSTIN WELL NUMBER MW-5
 23' From 1st. St. Sidewalk
 JOB NUMBER HT-2080-87H INSTALLATION DATE 4-14-87 LOCATION 52' From Colo. St. Sidewalk
 GROUND SURFACE ELEVATION 468.79' REFERENCE POINT ELEVATION 468.38'
 SCREEN DIAMETER AND MATERIAL 2" PVC SCH 40 SLOT SIZE 0.020"
 RISER DIAMETER AND MATERIAL 2" PVC SCH 40 BOREHOLE DIAMETER 8"
 GRANULAR BACKFILL MATERIAL 12/20 Colo. Silica Sd. LAW ENGINEERING REPRESENTATIVE KLP
 DRILLING TECHNIQUE Hollow Stem Auger DRILLING CONTRACTOR Law Engineering
 LOCK BRAND _____ SIZE/MODEL _____ KEY CODE/COMBINATION _____



NOTE: All elevations measured on west edge of casing tops & manways. Manway elevations are essentially ground level elevations.



LAW ENGINEERING TESTING COMPANY
 WILSON, TEXAS

APPENDIX F

SOUTHERN PETROLEUM LABORATORIES, INC.

SOIL ANALYSIS DATA SHEETS

INITIAL FIELD INVESTIGATION SAMPLES

MW-1	SAMPLE 13
MW-2a	SAMPLE 2 & 3
MW-2b	SAMPLE 8
MW-3	SAMPLE 2 & 3
MW-3	SAMPLE 8 & 9
MW-3	SAMPLE 11, 12, 13
MW-4	SAMPLE 2 & 3
MW-4	SAMPLE 9
MW-4	SAMPLE 10 & 11
MW-5	SAMPLE 10 & 11

NOTE: MW-2a & MW-2b are referred to as MW-2 in the report.
Also MW-2a - Sample 8 is referred to as MW-2 - Sample 13 in the report.

FINAL FIELD INVESTIGATION SAMPLES

SB-2A-1	HAND AUGER SOIL BORING COMPOSITE 2 - 3.5 FT.
SB-2A-2	HAND AUGER SOIL BORING COMPOSITE 3.5 - 4.5 FT.

NOTE: These were taken from one boring approximately 3 feet east of Monitor Well No. 2.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092675, page 2
Law Engineering

Organic carbon total 1.59 wt. % 05/01/87 5:00 pm SWL
EPA storet number 00680

Zinc, total 12.0 ppm 04/27/87 8:51 am GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092675
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 13
MW-1

Date Sampled: 04/16/87
Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver, total</u>	0.1	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Arsenic, total</u>	1.4	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.47	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Boron, total</u>	5.5	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	11.4	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	11.1	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.04	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	155	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	7.45	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	13.1	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	4.8	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092675, page 2
Law Engineering

Organic carbon total 1.59 wt. % 05/01/87 5:00 pm SWL
EPA storet number 00680

Zinc, total 12.0 ppm 04/27/87 8:51 am GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Sample ID: 92675
 Client Sample ID: MW-1

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 04/29/87
 Date Analyzed: 04/29/87
 Dilution Factor: 9.8

METHOD 625

CAS Number	UG/KG	CAS Number	UG/KG
62-75-9	N-Nitrosodimethylamine . . . 3200 <	100-02-7	4-Nitrophenol 16000 <
108-95-2	Phenol 3400	121-14-2	2,4-Dinitrotoluene 3200 <
111-44-4	bis(2-Chloroethyl)Ether . . . 3200 <	606-20-2	2,6-Dinitrotoluene 3200 <
95-57-8	2-Chlorophenol 3200 <	84-66-2	Diethylphthalate 3200 <
52-73-1	1,3-Dichlorobenzene 3200 <	7005-72-3	4-Chlorophenyl-phenylether 3200 <
106-46-7	1,4-Dichlorobenzene 3200 <	86-73-7	Fluorene 8000
95-50-1	1,2-Dichlorobenzene 3200 <	534-52-1	4,6-Dinitro-2-Methylphenol 16000 <
30638-32-9	bis(2-Chloroisopropyl)Ether 3200 <	86-30-6	N-Nitrosodiphenylamine (1) 3200 <
61-64-7	N-Nitroso-Di-n-Propylamine 3200 <	101-55-3	4-Bromophenyl-phenylether 3200 <
67-72-1	Hexachloroethane 3200 <	118-74-1	Hexachlorobenzene 3200 <
98-95-3	Nitrobenzene 3200 <	87-86-5	Pentachlorophenol 16000 <
71-59-1	Isophorone 3200 <	85-01-8	Phenanthrene 36000
80-75-5	2-Nitrophenol 3200 <	120-12-7	Anthracene 12000
105-67-9	2,4-Dimethylphenol 3500	84-74-2	Di-n-Butylphthalate 3200 <
111-91-1	bis(2-Chloroethoxy)Methane 3200 <	206-44-0	Fluoranthene 20000
100-83-2	2,4-Dichlorophenol 3200 <	129-00-0	Pyrene 17000
120-82-1	1,2,4-Trichlorobenzene . . . 3200 <	85-68-7	Butylbenzylphthalate 3200 <
91-20-3	Naphthalene 67000	56-55-3	Benzo(a)Anthracene 22000
81-68-3	Hexachlorobutadiene 3200 <	117-81-7	bis(2-Ethylhexyl)Phthalate 3200 <
59-50-7	4-Chloro-3-Methylphenol . . . 3200 <	218-01-9	Chrysene 15000
77-47-4	Hexachlorocyclopentadiene 3200 <	117-84-0	Di-n-Octyl Phthalate 3200 <
51-06-2	2,4,6-Trichlorophenol 3200 <	205-99-2	Benzo(b)Fluoranthene 3200 <
51-58-7	2-Chloronaphthalene 3200 <	207-08-9	Benzo(k)Fluoranthene 3200 <
131-11-3	Dimethyl Phthalate 3200 <	50-32-8	Benzo(a)Pyrene 3500
208-96-8	Acenaphthylene 11000	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 1600 =
606-20-2	2,6-Dinitrotoluene 3200 <	53-70-3	Dibenz(a,h)Anthracene 700 =
83-32-9	Acenaphthene 2600 =	191-24-2	Benzo(g,h,i)Perylene 1200 =
51-28-5	2,4-Dinitrophenol 16000 <		

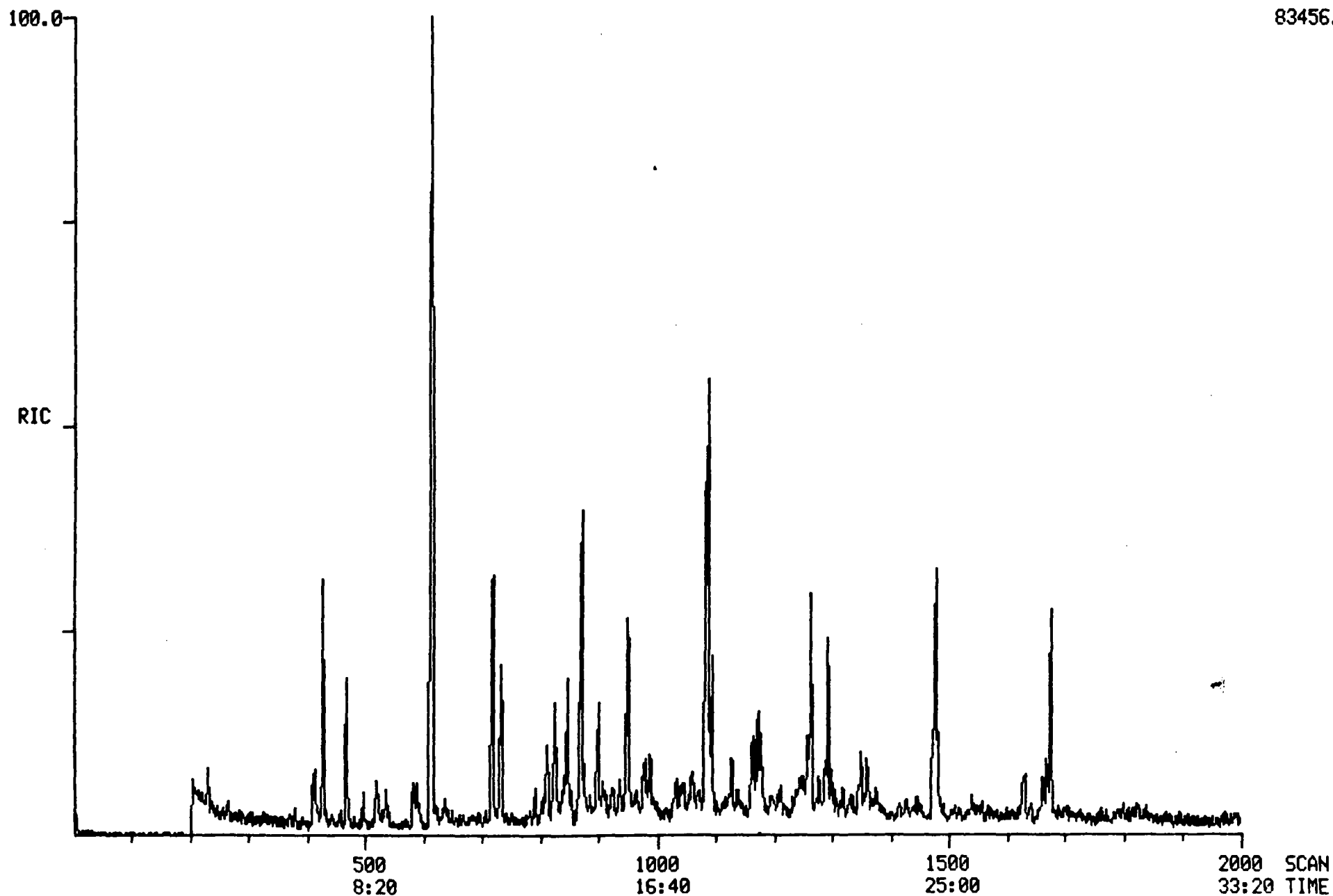
(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW2675BBA #1 SCANS 1 TO 2000
04/29/87 10:17:00 CALI: LAW2675BBA #3
SAMPLE: LAW ENG.--HT-2080-87H--MW-1--30.5G TO 50ML ---66.7PPM I.S.
CONDS.: 40/4.5-300@10/8---BNAS---BN
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

83456.



4/29/87 10:17:12 SCAN 1 OF 2000
Acquisition started

Acquire Run 0: LAW2675BBA ACQUIRING
4/29/87 10:17:00 + 0:02 Free sectors: 11022 Scan: 2 of 2000
Sample: LAW ENG. --HT-2080-87H--MW-1--30.5G TO 50ML ---66.7PPM I.S.
Conds.: 40/4.5-300@10/B---BNAS---BN
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Cent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
ADC Threshold: 1 Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/29/87 10:50:51
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	596.6	2000.0	29.8	100790.	50. 50.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092676
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 2&3
MW-2a
Date Sampled: 04/17/87
Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Arsenic, total</u>	0.08	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.36	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Boron, total</u>	5.6	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	1.1	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	6.2	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.02	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	73	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	17.2	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	11.4	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	23	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092676, page 2
Law Engineering

Organic carbon total 4.90 wt. % 05/01/87 5:00 pm SWL
EPA storet number 00680

Zinc, total 6.0 ppm 04/27/87 8:51 am GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 92676
 Client Sample ID: MW-2A

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 04/23/87
 Date Analyzed: 04/29/87
 Dilution Factor: 390

METHOD 625

CAS Number	UG/KG	CAS Number	UG/KG
2-75-9	N-Nitrosodimethylamine . . . 130000<	100-02-7	4-Nitrophenol 620000<
08-95-2	Phenol 70000 =	121-14-2	2,4-Dinitrotoluene 130000<
111-44-4	bis(2-Chloroethyl)Ether . . 130000<	606-20-2	2,6-Dinitrotoluene 130000<
05-57-8	2-Chlorophenol 130000<	84-66-2	Diethylphthalate 130000<
11-73-1	1,3-Dichlorobenzene 130000<	7005-72-3	4-Chlorophenyl-phenylether 130000<
106-46-7	1,4-Dichlorobenzene 130000<	86-73-7	Fluorene 520000
95-50-1	1,2-Dichlorobenzene 130000<	534-52-1	4,6-Dinitro-2-Methylphenol 620000<
9638-32-9	bis(2-Chloroisopropyl)Ether 130000<	86-30-6	N-Nitrosodiphenylamine (1) 37000 =
21-64-7	N-Nitroso-Di-n-Propylamine 130000<	101-55-3	4-Bromophenyl-phenylether 130000<
67-72-1	Hexachloroethane 130000<	118-74-1	Hexachlorobenzene 130000<
8-95-3	Nitrobenzene 29000 =	87-86-5	Pentachlorophenol 620000<
8-59-1	Isophorone 130000<	85-01-8	Phenanthrene 2.1E6
88-75-5	2-Nitrophenol 130000<	120-12-7	Anthracene 390000
105-67-9	2,4-Dimethylphenol 110000=	84-74-2	Di-n-Butylphthalate 130000<
11-91-1	bis(2-Chloroethoxy)Methane 130000<	206-44-0	Fluoranthene 1.5E6
120-83-2	2,4-Dichlorophenol 130000<	129-00-0	Pyrene 690000
120-82-1	1,2,4-Trichlorobenzene . . . 130000<	85-68-7	Butylbenzylphthalate 130000<
1-20-3	Naphthalene 3.7E6	56-55-3	Benzo(a)Anthracene 630000
7-68-3	Hexachlorobutadiene 130000<	117-81-7	bis(2-Ethylhexyl)Phthalate 130000<
59-50-7	4-Chloro-3-Methylphenol . . 130000<	218-01-9	Chrysene 470000
7-47-4	Hexachlorocyclopentadiene 130000<	117-84-0	Di-n-Octyl Phthalate 130000<
8-06-2	2,4,6-Trichlorophenol . . . 130000<	205-99-2	Benzo(b)Fluoranthene 480000
91-58-7	2-Chloronaphthalene 130000<	207-08-9	Benzo(k)Fluoranthene 510000
131-11-3	Dimethyl Phthalate 130000<	50-32-8	Benzo(a)Pyrene 310000
08-96-8	Acenaphthylene 490000	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 160000
06-20-2	2,6-Dinitrotoluene 130000<	53-70-3	Dibenz(a,h)Anthracene 48000 =
83-32-9	Acenaphthene 88000 =	191-24-2	Benzo(g,h,i)Perylene 150000
1-28-5	2,4-Dinitrophenol 620000<		

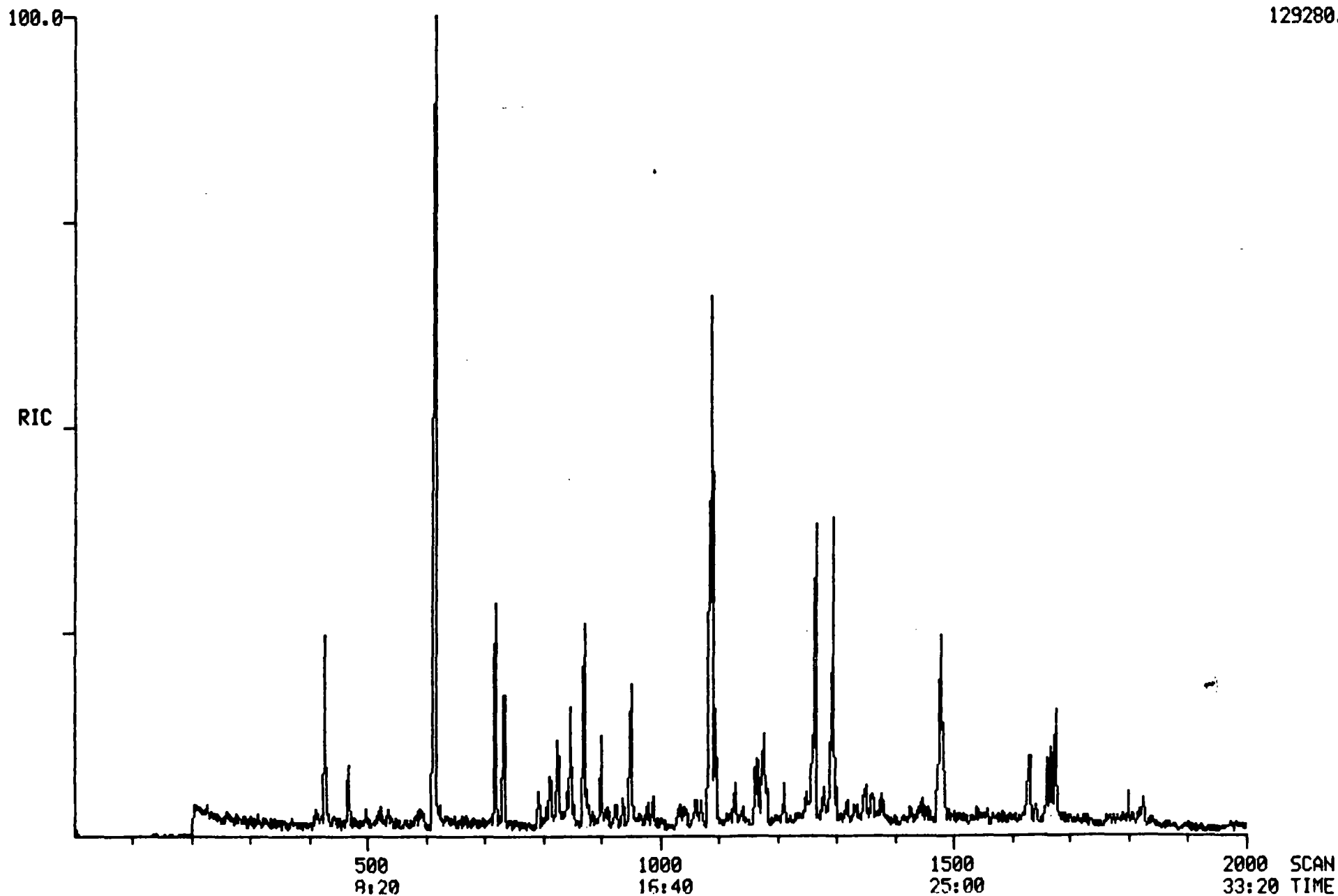
(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW92676 #1 SCANS 1 TO 2000
04/29/87 11:12:00 CALI: LAW92676 #3
SAMPLE: LAW ENG.--HT-2080-87H--MW-2A--30.8G TO 400ML--53.3PPM I.S.
CONDS.: 40/4.5-300@10/8---BNAS---BN
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

129280.



4/29/87 11:12:54
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW92676 ACQUIRING
4/29/87 11:12:00 + 0:03 Free sectors: 10106 Scan: 3 of 2000
Sample: LAW ENG. --HT-2080-87H---MW-2A--30.8G TO 400ML--53.3PPM I. S.
Conditions: 40/4.5-300@10/8---BNAS---BN
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 310 DegC
Seq. # Temp (C) Rate (C/m) Time (min) Total time (min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Cent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
ADC Threshold: 1 Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time (MS) 4

4/29/87 11:52:45
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	615.4	2000.0	30.8	117477.	59. 59.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092677

Invoice Number 216935

May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 8
MW-2b
Date Sampled: 04/17/87
Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Arsenic, total</u>	0.67	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.70	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Iron, total</u>	11	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	3.3	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	2.4	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.02	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	113	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	5.60	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	2.6	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	3.6	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092677, page 2
Law Engineering

Organic carbon total 1.28 wt. % 05/01/87 5:00 pm SWL
EPA storet number 00680

Zinc, total 2.4 ppm 04/27/87 8:51 am GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec

Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 92677
 Client Sample ID: MW-2B

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 04/23/87
 Date Analyzed: 04/29/87
 Dilution Factor: 470

METHOD 625

CAS Number	UG/KG	CAS Number	UG/KG
62-75-9	N-Nitrosodimethylamine . . . 160000<	100-02-7	4-Nitrophenol 760000<
108-95-2	Phenol 7400 =	121-14-2	2,4-Dinitrotoluene 160000<
111-44-4	bis(2-Chloroethyl)Ether . . 160000<	606-20-2	2,6-Dinitrotoluene 160000<
95-57-8	2-Chlorophenol 160000<	84-66-2	Diethylphthalate 160000<
51-73-1	1,3-Dichlorobenzene 17000 =	7005-72-3	4-Chlorophenyl-phenylether 160000<
106-46-7	1,4-Dichlorobenzene 160000<	86-73-7	Fluorene 240000
95-50-1	1,2-Dichlorobenzene 160000<	534-52-1	4,6-Dinitro-2-Methylphenol 760000<
30638-32-9	bis(2-Chloroisopropyl)Ether 160000<	86-30-6	N-Nitrosodiphenylamine (1) 160000<
61-64-7	N-Nitroso-Di-n-Propylamine 160000<	101-55-3	4-Bromophenyl-phenylether 160000<
67-72-1	Hexachloroethane 160000<	118-74-1	Hexachlorobenzene 160000<
98-95-3	Nitrobenzene 160000<	87-86-5	Pentachlorophenol 760000<
71-59-1	Isophorone 160000<	85-01-8	Phenanthrene 610000
81-75-5	2-Nitrophenol 160000<	120-12-7	Anthracene 170000
105-67-9	2,4-Dimethylphenol 160000<	84-74-2	Di-n-Butylphthalate 15000 =
111-91-1	bis(2-Chloroethoxy)Methane 160000<	206-44-0	Fluoranthene 290000
100-83-2	2,4-Dichlorophenol 160000<	129-00-0	Pyrene 320000
120-82-1	1,2,4-Trichlorobenzene . . . 160000<	85-68-7	Butylbenzylphthalate 160000<
91-20-3	Naphthalene 3.0E6	56-55-3	Benzo(a)Anthracene 180000
81-68-3	Hexachlorobutadiene 160000<	117-81-7	bis(2-Ethylhexyl)Phthalate 160000<
55-50-7	4-Chloro-3-Methylphenol . . 160000<	218-01-9	Chrysene 130000=
77-47-4	Hexachlorocyclopentadiene 160000<	117-84-0	Di-n-Octyl Phthalate 160000<
81-06-2	2,4,6-Trichlorophenol . . . 160000<	205-99-2	Benzo(b)Fluoranthene 110000=
91-58-7	2-Chloronaphthalene 160000<	207-08-9	Benzo(k)Fluoranthene 110000=
131-11-3	Dimethyl Phthalate 160000<	50-32-8	Benzo(a)Pyrene 97000 =
208-96-8	Acenaphthylene 190000	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 40000 =
606-20-2	2,6-Dinitrotoluene 160000<	53-70-3	Dibenz(a,h)Anthracene . . . 13000 =
83-32-9	Acenaphthene 190000	191-24-2	Benzo(g,h,i)Perylene 45000 =
51-28-5	2,4-Dinitrophenol 760000<		

(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC

04/29/87 14:24:00

SAMPLE: LAW ENG.--HT-2080-87H--MW-2B--3.18G TO 500ML--629PPM I.5.

COND5.: 40/4.5-300010/8---BNAS---BN

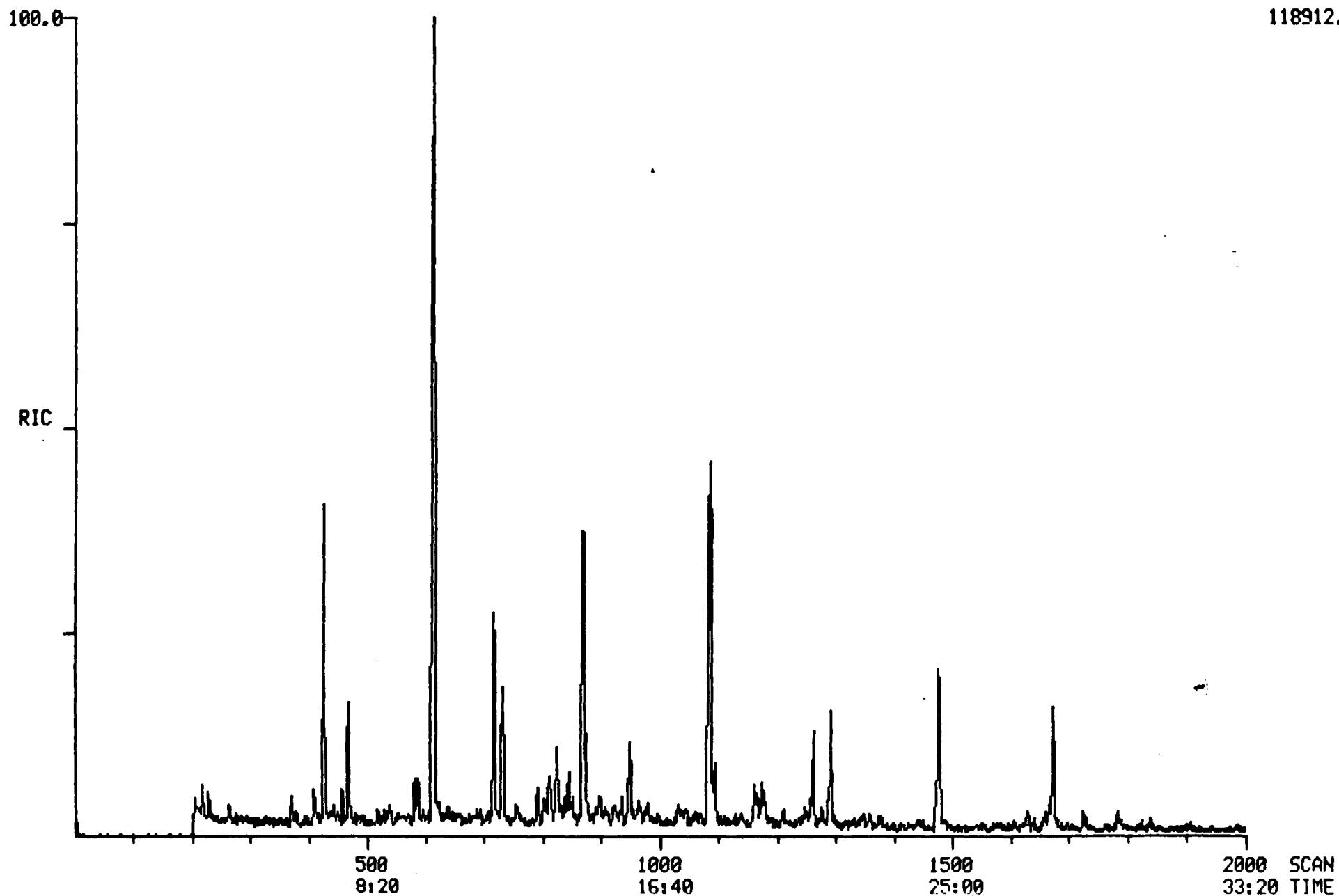
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: LAW2677ABA #1

SCANS 1 TO 2000

CALI: LAW2677ABA #3

118912.



4/29/87 10:17:12
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW2675BBA ACQUIRING
4/29/87 10:17:00 + 0:02 Free sectors: 11022 Scan: 2 of 2000
Sample: LAW ENG. --HT-2080-87H--MW-1--30.5G TO 50ML ---66.7PPM I. S.
Conds.: 40/4.5-300@10/8---BNAS---BN
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Cent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
ADC Threshold: 1 Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type 0
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/29/87 10:50:51
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	596.6	2000.0	29.8	100790.	50. 50.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092678
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 2&3
MW-3
Date Sampled: 04/15/87
Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver, total</u>	0.1	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Arsenic, total</u>	0.41	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.15	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Boron, total</u>	< 0.5	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	9.3	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	8.5	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.23	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	162	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	14.2	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	7.2	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	49	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092678, page 2
Law Engineering

Organic carbon total 1.70 wt. % 05/01/87 5:00 pm SWL
EPA storet number 00680

Zinc, total 30.3 ppm 04/27/87 8:51 am GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Sample ID: 92678
 Parent Sample ID: MW-3A

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 04/29/87
 Date Analyzed: 04/29/87
 Dilution Factor: 17

METHOD 625

CAS Number	UG/KG	CAS Number	UG/KG
62-75-9	N-Nitrosodimethylamine . . . 5400 <	100-02-7	4-Nitrophenol 610 =
108-95-2	Phenol 290 =	121-14-2	2,4-Dinitrotoluene 5400 <
111-44-4	bis(2-Chloroethyl)Ether . . 5400 <	606-20-2	2,6-Dinitrotoluene 5400 <
95-57-8	2-Chlorophenol 5400 <	84-66-2	Diethylphthalate 5400 <
58-73-1	1,3-Dichlorobenzene 230 =	7005-72-3	4-Chlorophenyl-phenylether 5400 <
108-46-7	1,4-Dichlorobenzene 5400 <	86-73-7	Fluorene 5100 =
95-50-1	1,2-Dichlorobenzene 5400 <	534-52-1	4,6-Dinitro-2-Methylphenol 26000 <
38-38-32-9	bis(2-Chloroisopropyl)Ether 5400 <	86-30-6	N-Nitrosodiphenylamine (1) 5400 <
68-64-7	N-Nitroso-Di-n-Propylamine 5400 <	101-55-3	4-Bromophenyl-phenylether 5400 <
67-72-1	Hexachloroethane 5400 <	118-74-1	Hexachlorobenzene 5400 <
98-95-3	Nitrobenzene 5400 <	87-86-5	Pentachlorophenol 26000 <
78-59-1	Isophorone 5400 <	85-01-8	Phenanthrene 30000
88-75-5	2-Nitrophenol 5400 <	120-12-7	Anthracene 5900
105-67-9	2,4-Dimethylphenol 5400 <	84-74-2	Di-n-Butylphthalate 490 =
111-91-1	bis(2-Chloroethoxy)Methane 5400 <	206-44-0	Fluoranthene 34000
118-83-2	2,4-Dichlorophenol 5400 <	129-00-0	Pyrene 70000
100-82-1	1,2,4-Trichlorobenzene . . 5400 <	85-68-7	Butylbenzylphthalate 5400 <
20-3	Naphthalene 3700 =	56-55-3	Benzo(a)Anthracene 5400 <
68-68-3	Hexachlorobutadiene 5400 <	117-81-7	bis(2-Ethylhexyl)Phthalate 530 =
59-50-7	4-Chloro-3-Methylphenol . . 5400 <	218-01-9	Chrysene 60000
77-47-4	Hexachlorocyclopentadiene 5400 <	117-84-0	Di-n-Octyl Phthalate 5400 <
88-06-2	2,4,6-Trichlorophenol . . . 5400 <	205-99-2	Benzo(b)Fluoranthene 5400 <
91-58-7	2-Chloronaphthalene 5400 <	207-08-9	Benzo(k)Fluoranthene 5400 <
131-11-3	Dimethyl Phthalate 5400 <	50-32-8	Benzo(a)Pyrene 22000
218-96-8	Acenaphthylene 3400 =	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 4000 =
68-20-2	2,6-Dinitrotoluene 5400 <	53-70-3	Dibenz(a,h)Anthracene 2600 =
83-32-9	Acenaphthene 1400 =	191-24-2	Benzo(g,h,i)Perylene 3600 =
51-28-5	2,4-Dinitrophenol 26000 <		

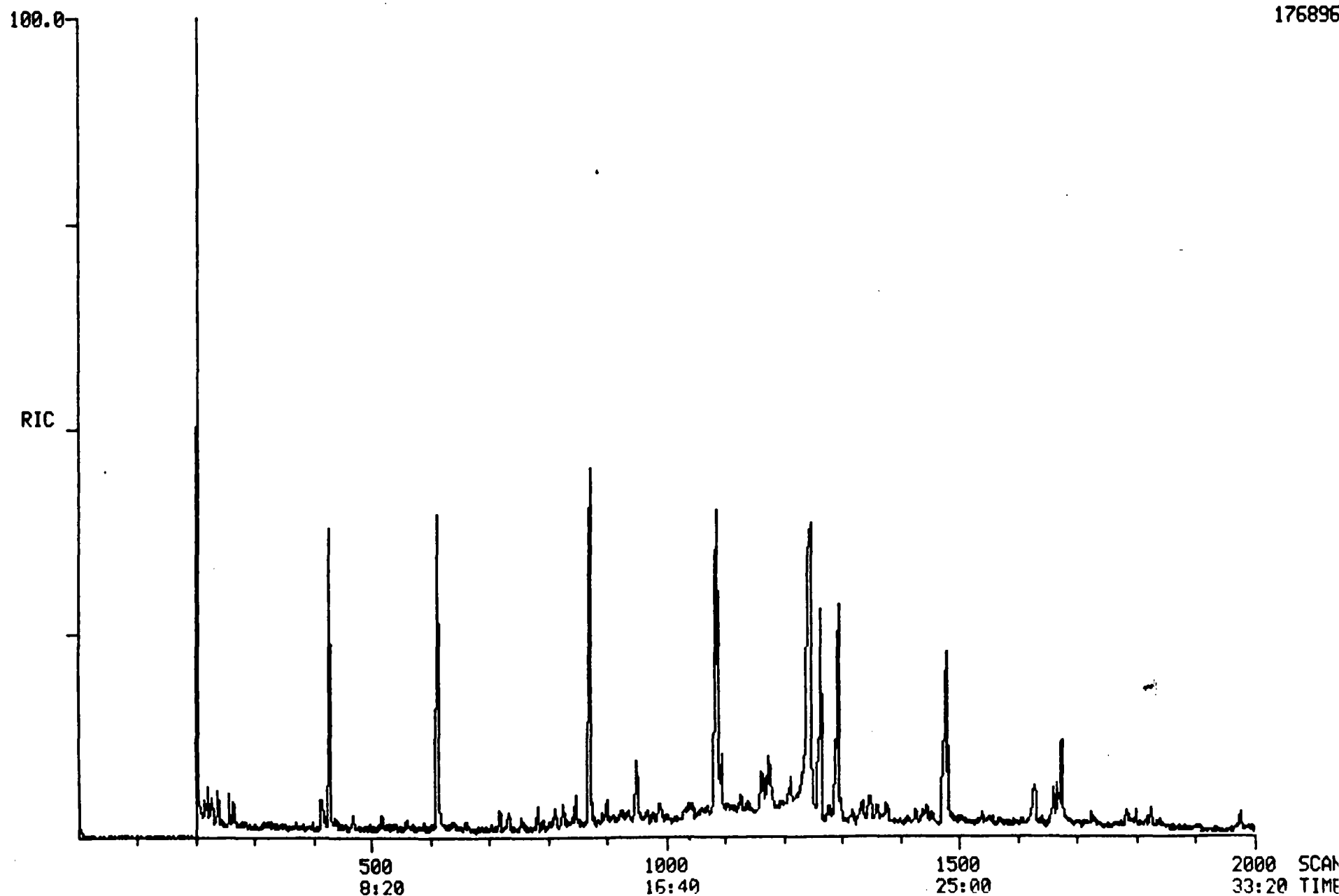
(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW2678ABA #1 SCANS 1 TO 2000
04/29/87 16:17:00 CALI: LAW2678ABA #3
SAMPLE: LAW ENG.--HT-2080-87H--MW-3--36.4G TO 20ML--22.0PPM I.S.
CONDS.: 40/4.5-300@10/8---BNAS---BN
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

176896



4/29/87 16:17:25
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW2678ABA ACQUIRING
4/29/87 16:17:00 + 0:03 Free sectors: 11166 Scan: 3 of 2000
Sample: LAW ENG.--HT-2080-87H--MW-3--36.4G TO 20ML--22.0PPM I.S.
Conds.: 40/4.5-300@10/8--BNAS---BN
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DDONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Sent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Tag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
DC Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type Q
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/29/87 16:50:49
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	622.6	2000.0	31.1	133218.	67. 67.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092679
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 8&9
MW-3

Date Sampled: 04/15/87
Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Arsenic, total</u>	0.60	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.29	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Boron, total</u>	< 0.5	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	4.3	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	4.3	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.01	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	126	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	14.8	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	5.5	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	4.9	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092679, page 2
Law Engineering

Organic carbon total	0.09	<u>wt. %</u>	05/01/87	5:00 pm	SWL
EPA storet number 00680					
<u>Zinc, total</u>	6.8	<u>ppm</u>	04/27/87	8:51 am	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Sample ID: 92679
 Client Sample ID: MW-3B

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 04/23/87
 Date Analyzed: 04/29/87
 Dilution Factor: 11

METHOD 625

CAS Number	UG/KG	CAS Number	UG/KG
68-75-9	N-Nitrosodimethylamine . . . 3700 <	100-02-7	4-Nitrophenol 550 =
108-95-2	Phenol 87 =	121-14-2	2,4-Dinitrotoluene 3700 <
111-44-4	bis(2-Chloroethyl)Ether . . 3700 <	606-20-2	2,6-Dinitrotoluene 3700 <
95-57-8	2-Chlorophenol 3700 <	84-66-2	Diethylphthalate 3700 <
501-73-1	1,3-Dichlorobenzene 170 =	7005-72-3	4-Chlorophenyl-phenylether 3700 <
106-46-7	1,4-Dichlorobenzene 3700 <	86-73-7	Fluorene 85 =
95-50-1	1,2-Dichlorobenzene 3700 <	534-52-1	4,6-Dinitro-2-Methylphenol 18000 <
3638-32-9	bis(2-Chloroisopropyl)Ether 3700 <	86-30-6	N-Nitrosodiphenylamine (1) 310 =
61-64-7	N-Nitroso-Di-n-Propylamine 3700 <	101-55-3	4-Bromophenyl-phenylether 76 =
67-72-1	Hexachloroethane 3700 <	118-74-1	Hexachlorobenzene 3700 <
98-95-3	Nitrobenzene 3700 <	87-86-5	Pentachlorophenol 18000 <
78-59-1	Isophorone 3700 <	85-01-8	Phenanthrene 1300 =
88-75-5	2-Nitrophenol 3700 <	120-12-7	Anthracene 480 =
105-67-9	2,4-Dimethylphenol 3700 <	84-74-2	Di-n-Butylphthalate 170 =
11-91-1	bis(2-Chloroethoxy)Methane 3700 <	206-44-0	Fluoranthene 460 =
100-83-2	2,4-Dichlorophenol 3700 <	129-00-0	Pyrene 990 =
82-1	1,2,4-Trichlorobenzene . . . 3700 <	85-68-7	Butylbenzylphthalate 3700 <
20-3	Naphthalene 3400 =	56-55-3	Benzo(a)Anthracene 3700 <
68-3	Hexachlorobutadiene 3700 <	117-81-7	bis(2-Ethylhexyl)Phthalate 230 =
59-50-7	4-Chloro-3-Methylphenol . . 3700 <	218-01-9	Chrysene 3300 =
77-47-4	Hexachlorocyclopentadiene 3700 <	117-84-0	Di-n-Octyl Phthalate 3700 <
8-06-2	2,4,6-Trichlorophenol . . . 3700 <	205-99-2	Benzo(b)Fluoranthene 210 =
51-58-7	2-Chloronaphthalene 3700 <	207-08-9	Benzo(k)Fluoranthene 3700 <
131-11-3	Dimethyl Phthalate 3700 <	50-32-8	Benzo(a)Pyrene 1200 =
8-96-8	Acenaphthylene 480 =	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 3700 <
6-20-2	2,6-Dinitrotoluene 3700 <	53-70-3	Dibenz(a,h)Anthracene 420 =
83-32-9	Acenaphthene 3700 <	191-24-2	Benzo(g,h,i)Perylene 390 =
54-28-5	2,4-Dinitrophenol 18000 <		

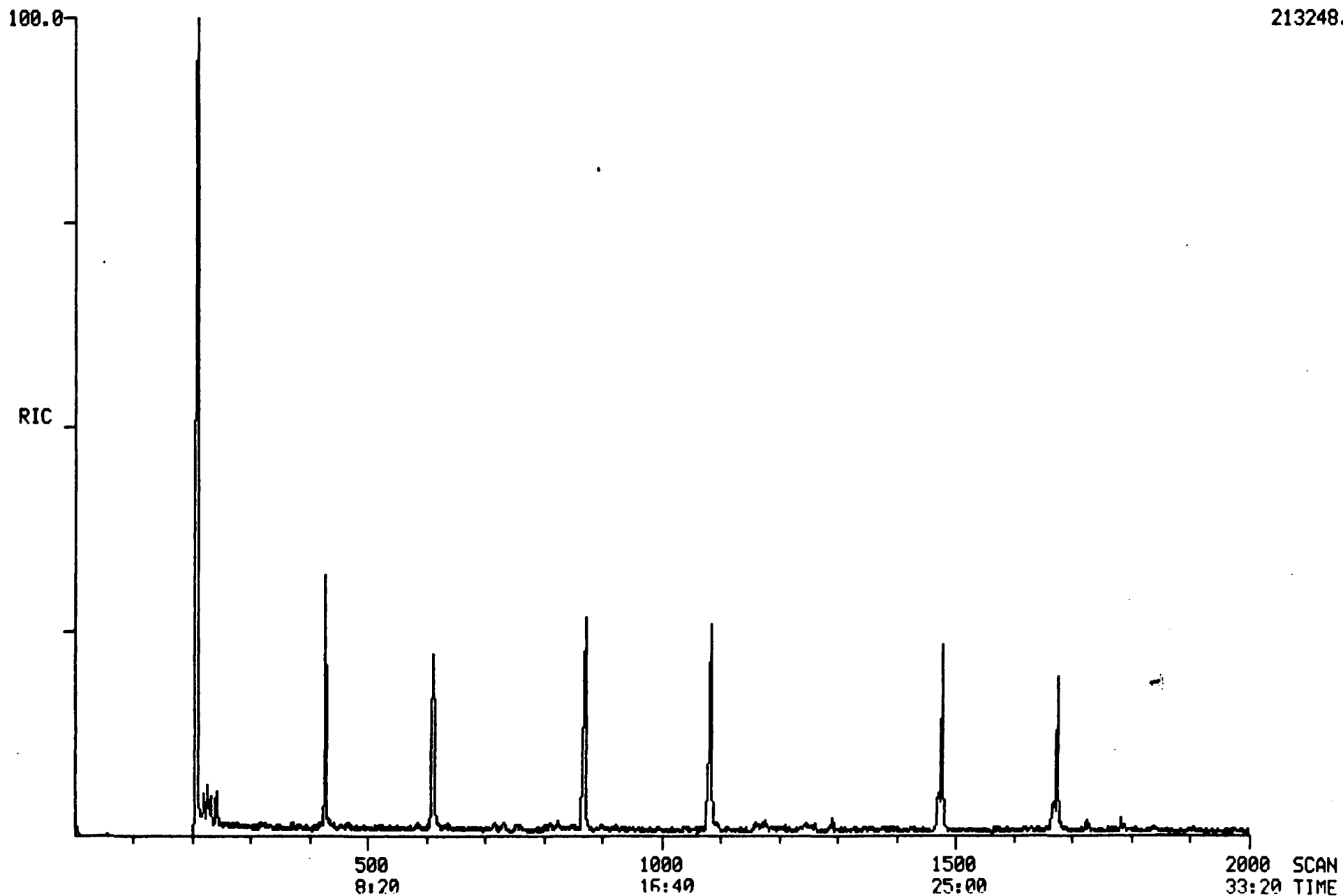
(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW926798A #1 SCANS 1 TO 2000
04/29/87 17:08:00 CALI: LAW926798A #3
SAMPLE: LAW ENG.--HT-2080-87H--MW-3-#8 & 9--MW-3--26.8G TO 10ML--14.9PPM
CONDS.: 40/4.5-300@10/8---BNAS---BN
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

213248.



4/29/87 17:08:19
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW92679BA ACQUIRING
4/29/87 17:08:00 + 0:03 Free sectors: 9995 Scan: 3 of 2000
Sample: LAW ENG. --HT-2080-87H--MW-3-#8 & 9--MW-3--26.8G TO 10ML--14.9PPM
Conds.: 40/4.5-300@10/8---BNAS---BN
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DDONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 0 min Int. oven : 310 DegC
Seq. # Temp (C) Rate (C/m) Time (min) Total time (min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05

Cent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2

Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
ADC Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type Q
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time (MS) 4

4/29/87 17:41:46

ACQUISITION COMPLETED

SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	602.6	2000.0	30.1	92423.	46. 46.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092680

Invoice Number 216935

May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 11,12,13
MW-3

Date Sampled: 04/15/87

Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver, total</u>	0.4	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Arsenic, total</u>	0.78	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.80	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Boron, total</u>	5.6	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	4.6	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	3.8	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.04	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	114	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	10.4	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	4.4	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	4.0	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092680, page 2
Law Engineering

Organic carbon total 0.81 wt. % 05/01/87 5:00 pm SWL
EPA storet number 00680

Zinc, total 3.4 ppm 04/27/87 8:51 am GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec

Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 92680
 Client Sample ID: MW-3B

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 04/27/87
 Date Analyzed: 04/30/87
 Dilution Factor: 22

METHOD 625

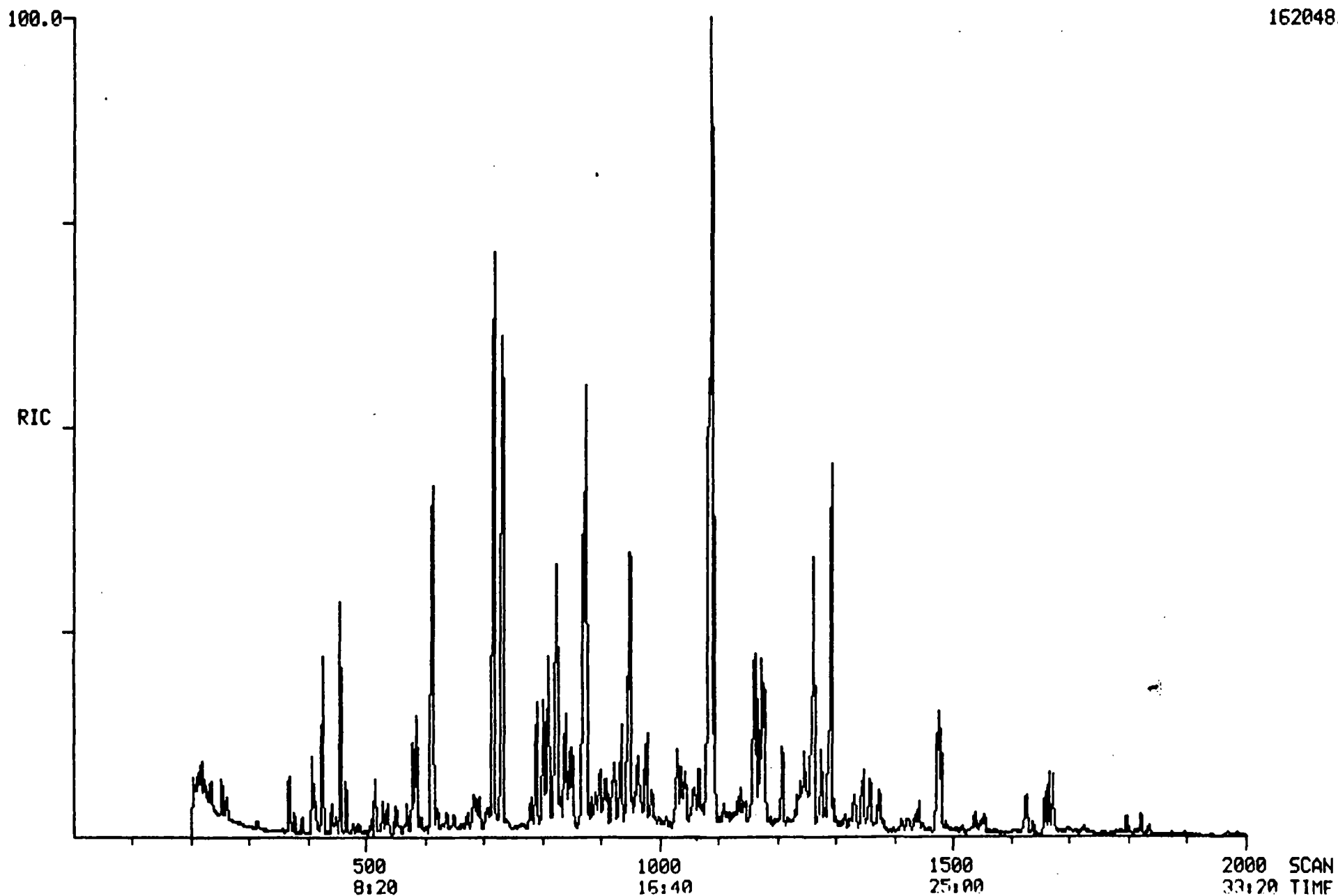
CAS Number	UG/KG	CAS Number	UG/KG
67-75-9	N-Nitrosodimethylamine . . 7200 <	100-02-7	4-Nitrophenol 1600 =
108-95-2	Phenol 7200 <	121-14-2	2,4-Dinitrotoluene 3200 =
111-44-4	bis(2-Chloroethyl)Ether . 7200 <	606-20-2	2,6-Dinitrotoluene 7200 <
95-57-8	2-Chlorophenol 7200 <	84-66-2	Diethylphthalate 7200 <
50-73-1	1,3-Dichlorobenzene . . . 7200 <	7005-72-3	4-Chlorophenyl-phenylether 7200 <
106-46-7	1,4-Dichlorobenzene . . . 7200 <	86-73-7	Fluorene 45000
95-50-1	1,2-Dichlorobenzene . . . 7200 <	534-52-1	4,6-Dinitro-2-Methylphenol 35000 <
30638-32-9	bis(2-Chloroisopropyl)Ether 7200 <	86-30-6	N-Nitrosodiphenylamine (1) 7200 <
61-64-7	N-Nitroso-Di-n-Propylamine 7200 <	101-55-3	4-Bromophenyl-phenylether 7200 <
67-72-1	Hexachloroethane 7200 <	118-74-1	Hexachlorobenzene 7200 <
98-95-3	Nitrobenzene 7200 <	87-86-5	Pentachlorophenol 35000 <
71-59-1	Isophorone 220 =	85-01-8	Phenanthrene 250000
88-75-5	2-Nitrophenol 7200 <	120-12-7	Anthracene 48000
105-67-9	2,4-Dimethylphenol 7200 <	84-74-2	Di-n-Butylphthalate 430 =
101-91-1	bis(2-Chloroethoxy)Methane 7200 <	206-44-0	Fluoranthene 83000
100-83-2	2,4-Dichlorophenol 7200 <	129-00-0	Pyrene 85000
120-82-1	1,2,4-Trichlorobenzene . . 7200 <	85-68-7	Butylbenzylphthalate 7200 <
84-20-3	Naphthalene 84000	56-55-3	Benzo(a)Anthracene 40000
84-68-3	Hexachlorobutadiene 7200 <	117-81-7	bis(2-Ethylhexyl)Phthalate 180 =
59-50-7	4-Chloro-3-Methylphenol . 7200 <	218-01-9	Chrysene 34000
77-47-4	Hexachlorocyclopentadiene 7200 <	117-84-0	Di-n-Octyl Phthalate 7200 <
84-06-2	2,4,6-Trichlorophenol . . 7200 <	205-99-2	Benzo(b)Fluoranthene 27000
81-58-7	2-Chloronaphthalene 7200 <	207-08-9	Benzo(k)Fluoranthene 29000
131-11-3	Dimethyl Phthalate 7200 <	50-32-8	Benzo(a)Pyrene 28000
208-96-8	Acenaphthylene 16000	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 12000
606-20-2	2,6-Dinitrotoluene 7200 <	53-70-3	Dibenz(a,h)Anthracene . . . 3900 =
83-32-9	Acenaphthene 80000	191-24-2	Benzo(g,h,i)Perylene 13000
84-28-5	2,4-Dinitrophenol 35000 <		

(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW2680ABA #1 SCANS 1 TO 2000
04/30/87 11:26:00 CALI: LAW2680ABA #3
SAMPLE: LAW ENG.-HT-2080-87H-MW-3-#11,12,13--13.7G TO 10ML--29PPM IS
CONDS.: 40/4-300@10-RTX5-20 PSI
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



4/30/87 11:26:30
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW26B0ABA ACQUIRING
4/30/87 11:26:00 + 0:02 Free sectors: 8892 Scan: 2 of 2000
Sample: LAW ENG. -HT-2080-87H-MW-3-#11, 12, 13--13.7G TO 10ML--29PPM IS
Conds.: 40/4-300@10-RTX5-20 PSI
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 0 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05

Sent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2

Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
ADC Threshold: 1 Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type Q
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/30/87 11:59:53
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	453.0	2000.0	22.6	73156.	37. 37.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092681
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 2&3
MW-4
Date Sampled: 04/15/87
Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Arsenic, total</u>	0.41	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.43	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Boron, total</u>	< 0.5	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	4.9	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	4.1	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.02	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	158	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	10.7	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	4.4	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	11	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092681, page 2
Law Engineering

Organic carbon total	0.17	wt. %	05/01/87	5:00 pm	SWL
EPA storet number 00680					
Inc, total	12.0	ppm	04/27/87	8:51 am	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Sample ID: 92681
 Client Sample ID: MW-4A

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture: _____

Date Extracted: 04/27/87
 Date Analyzed: 04/30/87
 Dilution Factor: 9.2

METHOD 625

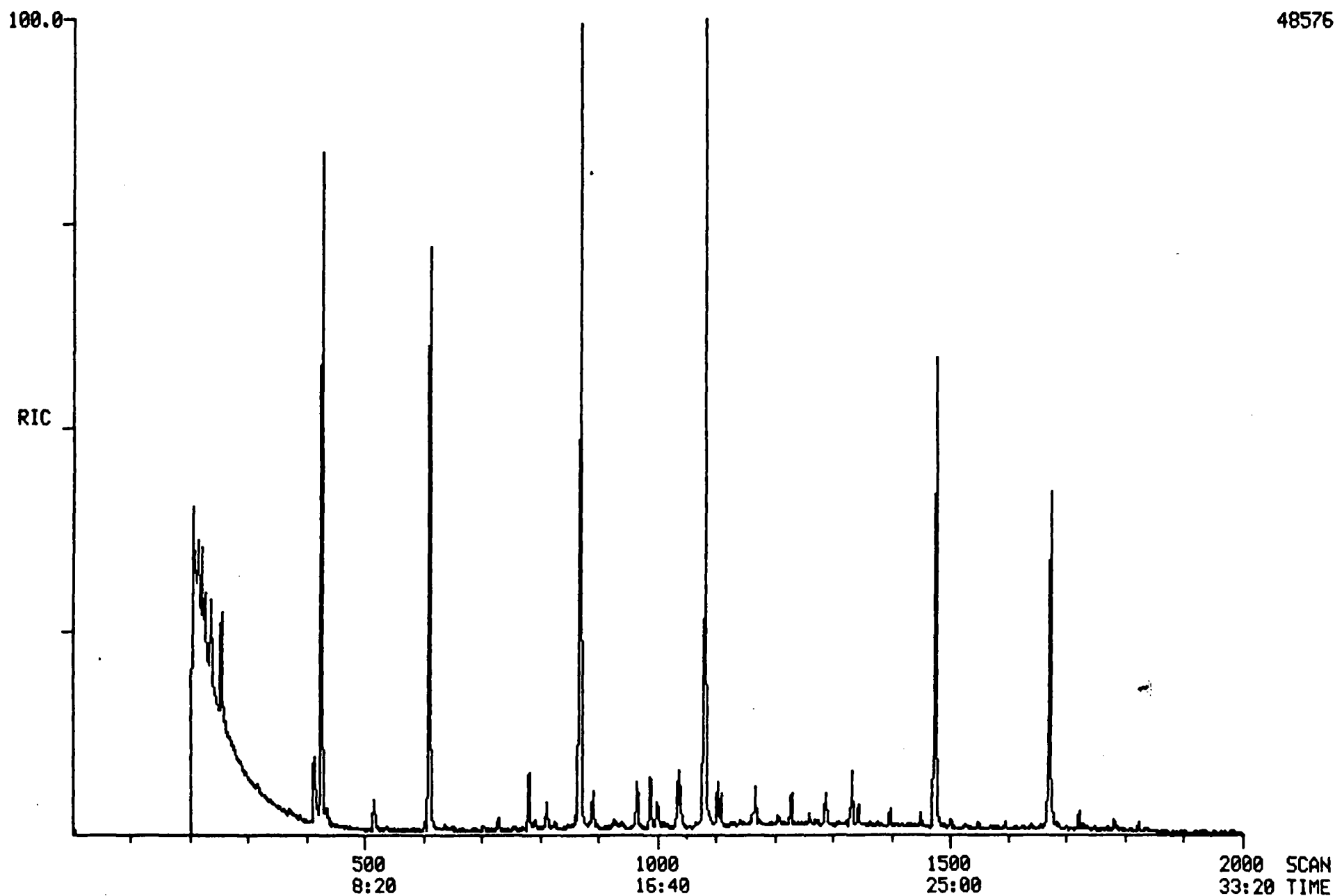
CAS Number	UG/KG	CAS Number	UG/KG
62-75-9	N-Nitrosodimethylamine . . . 3000 <	100-02-7	4-Nitrophenol 15000 <
108-95-2	Phenol 3000 <	121-14-2	2,4-Dinitrotoluene 3000 <
101-44-4	bis(2-Chloroethyl)Ether . . . 3000 <	606-20-2	2,6-Dinitrotoluene 3000 <
95-57-8	2-Chlorophenol 3000 <	84-66-2	Diethylphthalate 3000 <
501-73-1	1,3-Dichlorobenzene . . . 3000 <	7005-72-3	4-Chlorophenyl-phenylether 3000 <
106-46-7	1,4-Dichlorobenzene . . . 3000 <	86-73-7	Fluorene 3000 <
95-50-1	1,2-Dichlorobenzene . . . 3000 <	534-52-1	4,6-Dinitro-2-Methylphenol 15000 <
39638-32-9	bis(2-Chloroisopropyl)Ether 3000 <	86-30-6	N-Nitrosodiphenylamine (1) 3000 <
61-64-7	N-Nitroso-Di-n-Propylamine 3000 <	101-55-3	4-Bromophenyl-phenylether 3000 <
67-72-1	Hexachloroethane 3000 <	118-74-1	Hexachlorobenzene 3000 <
98-95-3	Nitrobenzene 3000 <	87-86-5	Pentachlorophenol 15000 <
77-59-1	Isophorone 3000 <	85-01-8	Phenanthrene 320 =
81-75-5	2-Nitrophenol 3000 <	120-12-7	Anthracene 100 =
105-67-9	2,4-Dimethylphenol 3000 <	84-74-2	Di-n-Butylphthalate 240 =
111-91-1	bis(2-Chloroethoxy)Methane 3000 <	206-44-0	Fluoranthene 520 =
103-2	2,4-Dichlorophenol 3000 <	129-00-0	Pyrene 320 =
100-1	1,2,4-Trichlorobenzene . . . 3000 <	85-68-7	Butylbenzylphthalate 3000 <
120-3	Naphthalene 3000 <	56-55-3	Benzo(a)Anthracene 230 =
81-68-3	Hexachlorobutadiene 3000 <	117-81-7	bis(2-Ethylhexyl)Phthalate 3000 <
50-50-7	4-Chloro-3-Methylphenol . . . 3000 <	218-01-9	Chrysene 190 =
77-47-4	Hexachlorocyclopentadiene 3000 <	117-84-0	Di-n-Octyl Phthalate 3000 <
81-06-2	2,4,6-Trichlorophenol . . . 3000 <	205-99-2	Benzo(b)Fluoranthene 190 =
91-58-7	2-Chloronaphthalene 3000 <	207-08-9	Benzo(k)Fluoranthene 200 =
131-11-3	Dimethyl Phthalate 3000 <	50-32-8	Benzo(a)Pyrene 170 =
208-96-8	Acenaphthylene 66 =	193-39-5	Indeno(1,2,3-cd)Pyrene 67 =
606-20-2	2,6-Dinitrotoluene 3000 <	53-70-3	Dibenz(a,h)Anthracene 3000 <
83-32-9	Acenaphthene 3000 <	191-24-2	Benzo(g,h,i)Perylene 81 =
51-28-5	2,4-Dinitrophenol 15000 <		

(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW92681BA #1 SCANS 1 TO 2000
04/30/87 12:22:00 CALI: LAW92681BA #3
SAMPLE: LAW ENG.--HT-2080-87H--MW-4--#2,3--32.8G TO 10ML--12.2PPM 1.5.
CONDS.: 40/4-300010-RTX5-20 PSI
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



4/30/87 12:23:03
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW92681BA ACQUIRING
4/30/87 12:22:00 + 0:01 Free sectors: 8193 Scan: 1 of 2000
Sample: LAW ENG. --HT-2080-87H--MW-4--#2,3--32.8G TO 10ML--12.2PPM I.S.
Conds.: 40/4-300@10-RTX5-20 PSI
Formula:
Submitted by: Instrument: A Weight: 1.000
Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Sent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
DC Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass: 0 mmu
Offset at high mass: 0 mmu
Voltage settling time(MS) 4

4/30/87 13:00:19
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Sers	Out of	%	Peaks per scan	per sec
Centroid	2000	4212	2000.0	21.4	25002.	13. 13.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092682

Invoice Number 216935

May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 9
MW-4

Date Sampled: 04/15/87

Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Aluminum, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Arsenic, total</u>	0.28	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.32	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Boron, total</u>	22	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	5.6	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	5.5	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.02	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	210	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	9.20	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	6.7	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	6.0	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 0926d2, page 2
Law Engineering

Organic carbon total 0.10 wt. % 05/01/87 5:00 pm SWL
EPA storet number 00680

Zinc, total 9.2 ppm 04/27/87 8:51 am GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Sample ID: 92682
 Client Sample ID: MW-4B

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 04/27/87
 Date Analyzed: 04/30/87
 Dilution Factor: 11

METHOD 625

CAS Number	UG/KG	CAS Number	UG/KG
62-75-9	N-Nitrosodimethylamine . . . 3800 <	100-02-7	4-Nitrophenol 18000 <
108-95-2	Phenol 3800 <	121-14-2	2,4-Dinitrotoluene 3800 <
111-44-4	bis(2-Chloroethyl)Ether . . . 3800 <	606-20-2	2,6-Dinitrotoluene 3800 <
95-57-8	2-Chlorophenol 3800 <	84-66-2	Diethylphthalate 3800 <
501-73-1	1,3-Dichlorobenzene 3800 <	7005-72-3	4-Chlorophenyl-phenylether 3800 <
106-46-7	1,4-Dichlorobenzene 3800 <	86-73-7	Fluorene 3800 <
95-50-1	1,2-Dichlorobenzene 3800 <	534-52-1	4,6-Dinitro-2-Methylphenol 18000 <
30638-32-9	bis(2-Chloroisopropyl)Ether 3800 <	86-30-6	N-Nitrosodiphenylamine (1) 3800 <
601-64-7	N-Nitroso-Di-n-Propylamine 3800 <	101-55-3	4-Bromophenyl-phenylether 3800 <
67-72-1	Hexachloroethane 3800 <	118-74-1	Hexachlorobenzene 3800 <
98-95-3	Nitrobenzene 3800 <	87-86-5	Pentachlorophenol 18000 <
78-59-1	Isophorone 3800 <	85-01-8	Phenanthrene 3800 <
80-75-5	2-Nitrophenol 3800 <	120-12-7	Anthracene 3800 <
105-67-9	2,4-Dimethylphenol 3800 <	84-74-2	Di-n-Butylphthalate 290 =
101-91-1	bis(2-Chloroethoxy)Methane 3800 <	206-44-0	Fluoranthene 3800 <
100-83-2	2,4-Dichlorophenol 3800 <	129-00-0	Pyrene 3800 <
120-82-1	1,2,4-Trichlorobenzene . . . 3800 <	85-68-7	Butylbenzylphthalate 3800 <
94-20-3	Naphthalene 3800 <	56-55-3	Benzo(a)Anthracene 3800 <
80-68-3	Hexachlorobutadiene 3800 <	117-81-7	bis(2-Ethylhexyl)Phthalate 3800 <
59-50-7	4-Chloro-3-Methylphenol . . . 3800 <	218-01-9	Chrysene 3800 <
77-47-4	Hexachlorocyclopentadiene 3800 <	117-84-0	Di-n-Octyl Phthalate 3800 <
80-06-2	2,4,6-Trichlorophenol 3800 <	205-99-2	Benzo(b)Fluoranthene 3800 <
91-58-7	2-Chloronaphthalene 3800 <	207-08-9	Benzo(k)Fluoranthene 3800 <
131-11-3	Dimethyl Phthalate 3800 <	50-32-8	Benzo(a)Pyrene 3800 <
208-96-8	Acenaphthylene 3800 <	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 3800 <
606-20-2	2,6-Dinitrotoluene 3800 <	53-70-3	Dibenz(a,h)Anthracene 3800 <
83-32-9	Acenaphthene 3800 <	191-24-2	Benzo(g,h,i)Perylene 3800 <
51-28-5	2,4-Dinitrophenol 18000 <		

(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC

04/30/87 13:19:00

DATA: LAW92682BA #1

SCANS 1 TO 2000

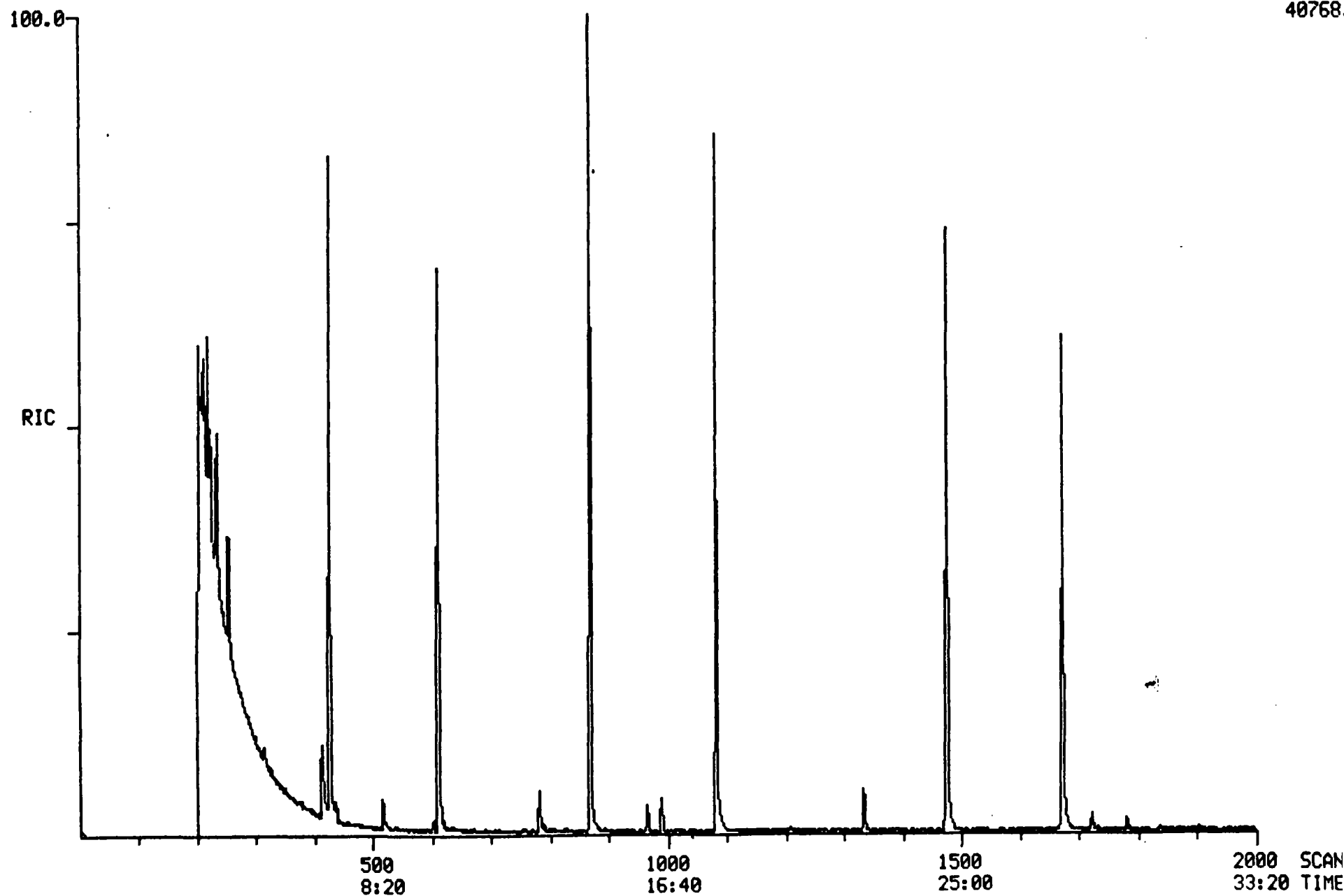
CALI: LAW92682BA #3

SAMPLE: LAW ENG.--HT-2000-87H--MW-4--#9--26.4G TO 10ML--15.2PPM 15

CONDS.: 40/4-300010-RTX5-20 PSI

RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

40768



4/30/87 13:19:23
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW92682BA ACQUIRING
4/30/87 13:19:00 + 0:03 Free sectors: 7853 Scan: 3 of 2000
Sample: LAW ENG.--HT-2080-87H--MW-4--#9--26.4G TO 10ML--15.2PPM IS
Conds.: 40/4-300@10-RTX5-20 PSI
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 37 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Sent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
AOC Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/30/87 13:53:43
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	394.2	2000.0	19.7	15508.	8. 8.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092683
Invoice Number 216935
May 05, 1987

Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 10&11
MW-4
Date Sampled: 04/15/87
Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Aluminum, total</u>	0.1	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Arsenic, total</u>	0.97	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.72	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Boron, total</u>	< 0.5	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	11.1	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	14.0	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.02	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	249	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	6.42	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	12.3	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	4.7	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092683, page 2
Law Engineering

Organic carbon total 1.16 wt. % 05/01/87 5:00 pm SWL
EPA storet number 00680

Zinc, total 22.0 ppm 04/27/87 8:51 am GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 92683
 Client Sample ID: MW-4C

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 04/27/87
 Date Analyzed: 04/30/87
 Dilution Factor: 9.6

METHOD 625

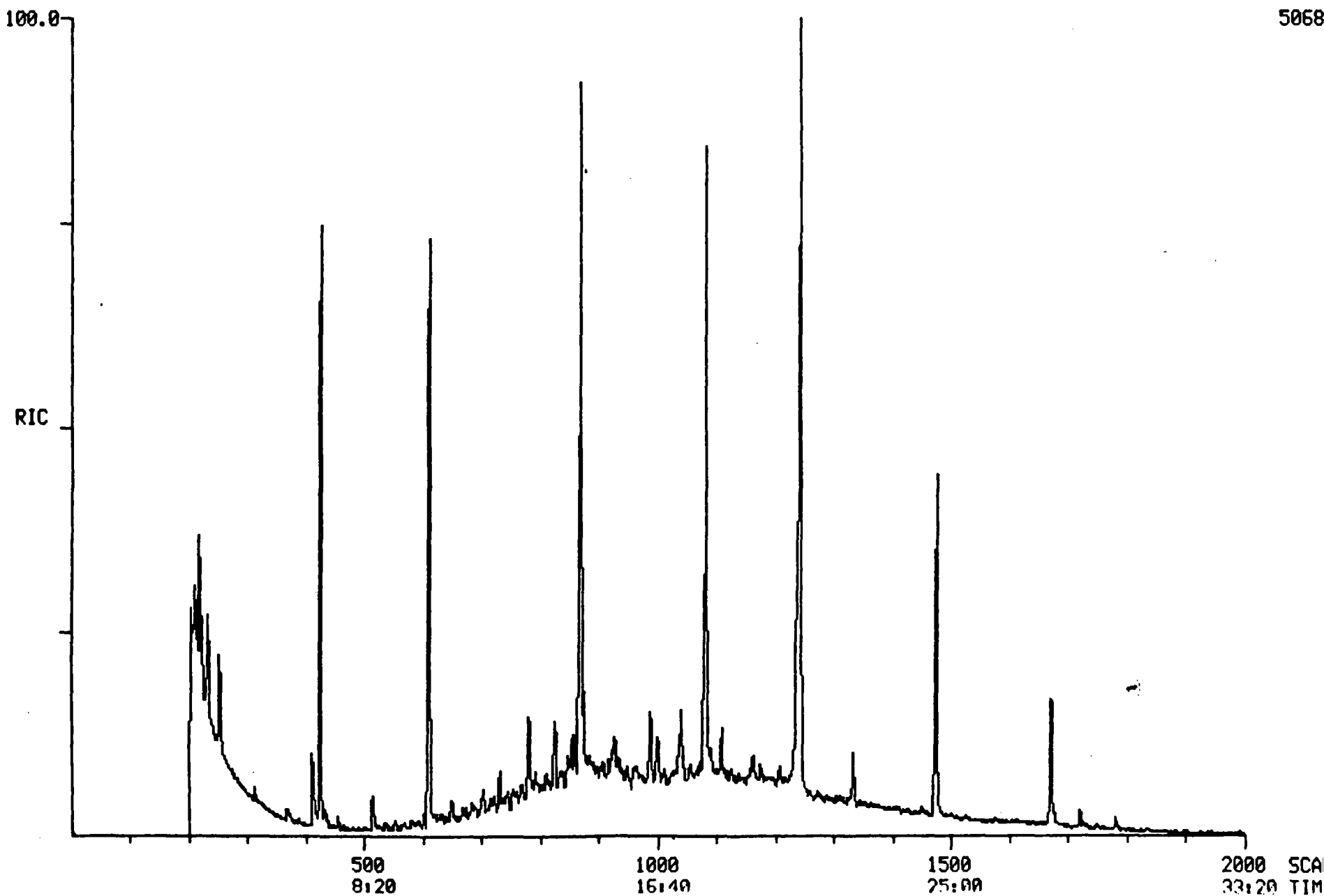
CAS Number	UG/KG	CAS Number	UG/KG
62-75-9	N-Nitrosodimethylamine . . . 3200 <	100-02-7	4-Nitrophenol 15000 <
8-95-2	Phenol 3200 <	121-14-2	2,4-Dinitrotoluene 3200 <
11-44-4	bis(2-Chloroethyl)Ether . . 3200 <	606-20-2	2,6-Dinitrotoluene 3200 <
95-57-8	2-Chlorophenol 3200 <	84-66-2	Diethylphthalate 3200 <
1-73-1	1,3-Dichlorobenzene 3200 <	7005-72-3	4-Chlorophenyl-phenylether 3200 <
6-46-7	1,4-Dichlorobenzene 3200 <	86-73-7	Fluorene 340 =
95-50-1	1,2-Dichlorobenzene 3200 <	534-52-1	4,6-Dinitro-2-Methylphenol 15000 <
2638-32-9	bis(2-Chloroisopropyl)Ether 3200 <	86-30-6	N-Nitrosodiphenylamine (1) 210 =
1-64-7	N-Nitroso-Di-n-Propylamine 3200 <	101-55-3	4-Bromophenyl-phenylether 3200 <
67-72-1	Hexachloroethane 3200 <	118-74-1	Hexachlorobenzene 3200 <
98-95-3	Nitrobenzene 3200 <	87-86-5	Pentachlorophenol 15000 <
59-1	Isophorone 3200 <	85-01-8	Phenanthrene 1100 =
8-75-5	2-Nitrophenol 3200 <	120-12-7	Anthracene 200 =
105-67-9	2,4-Dimethylphenol 3200 <	84-74-2	Di-n-Butylphthalate 530 =
1-91-1	bis(2-Chloroethoxy)Methane 3200 <	206-44-0	Fluoranthene 320 =
0-83-2	2,4-Dichlorophenol 3200 <	129-00-0	Pyrene 3200 <
120-82-1	1,2,4-Trichlorobenzene . . . 3200 <	85-68-7	Butylbenzylphthalate 3200 <
20-3	Naphthalene 2600 =	56-55-3	Benzo(a)Anthracene 3200 <
68-3	Hexachlorobutadiene 3200 <	117-81-7	bis(2-Ethylhexyl)Phthalate 3200 <
59-50-7	4-Chloro-3-Methylphenol . . . 3200 <	218-01-9	Chrysene 3200 <
77-47-4	Hexachlorocyclopentadiene 3200 <	117-84-0	Di-n-Octyl Phthalate 3200 <
0-06-2	2,4,6-Trichlorophenol 3200 <	205-99-2	Benzo(b)Fluoranthene 3200 <
58-7	2-Chloronaphthalene 3200 <	207-08-9	Benzo(k)Fluoranthene 3200 <
131-11-3	Dimethyl Phthalate 3200 <	50-32-8	Benzo(a)Pyrene 3200 <
8-96-8	Acenaphthylene 3200 <	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 3200 <
6-20-2	2,6-Dinitrotoluene 3200 <	53-70-3	Dibenz(a,h)Anthracene 3200 <
83-32-9	Acenaphthene 1800 =	191-24-2	Benzo(g,h,i)Perylene 3200 <
51-28-5	2,4-Dinitrophenol 15000 <		

(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW92683BA #1 SCANS 1 TO 2000
04/30/87 14:12:00 CALI: LAW92683BA #3
SAMPLE: LAW ENG.--HT-2080-87H--MW-4--#10,11--31.4G TO 10ML--12.7PPM I.S.
CONDS.: 40/4-300010-RTX5-20 PSI
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



4/30/87 14:12:15
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW926B3BA ACQUIRING
04/30/87 14:12:00 + 0:01 Free sectors: 11749 Scan: 1 of 2000
Sample: LAW ENG.--HT-2080-B7H--MW-4--#10,11--31.4G TO 10ML--12.7PPM I. S.
Conds.: 40/4-300@10-RTX5-20 PSI
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Sent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Flag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
A/C Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/30/87 14:45:42
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	440.0	2000.0	22.0	54687.	27. 27.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092684
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample 10&11
MW-5
Date Sampled: 04/14/87
Date Received: 04/20/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver, total</u>	< 0.1	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Senic, total</u>	0.24	<u>ppm</u>	04/23/87	10:16 am	GS
<u>Barium, total</u>	0.71	<u>wt. %</u>	04/27/87	10:48 am	GS
<u>Iron, total</u>	5.6	<u>ppm</u>	04/24/87	9:00 am	MGV
<u>Cadmium, total</u>	0.1	<u>ppm</u>	04/24/87	11:20 am	GS
<u>Chromium, total</u>	10.7	<u>ppm</u>	04/24/87	2:23 pm	GS
<u>Copper, total</u>	9.3	<u>ppm</u>	04/24/87	2:13 pm	GS
<u>Mercury, total</u>	0.03	<u>ppm</u>	04/28/87	9:35 am	GS
<u>Manganese, total</u>	476	<u>ppm</u>	04/27/87	7:49 am	GS
<u>Moisture</u>	9.79	<u>wt %</u>	04/29/87	2:50 pm	APM
<u>Nickel, total</u>	11.0	<u>ppm</u>	04/27/87	8:41 am	GS
<u>Lead, total</u>	4.5	<u>ppm</u>	04/24/87	11:00 am	GS
<u>Priority Pollutants</u>	enclosure		05/04/87	5:00 pm	DD
<u>Selenium, total</u>	< 0.25	<u>ppm</u>	04/23/87	2:41 pm	GS



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092684, page 2
Law Engineering

Organic carbon total	0.53	<u>wt. %</u>	05/01/87	5:00 pm	SWL
EPA storet number 00680					
<u>Zinc, total</u>	10.1	<u>ppm</u>	04/27/87	8:51 am	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Sample ID: 92684
 Parent Sample ID: MW-5

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 04/27/87
 Date Analyzed: 04/30/87
 Dilution Factor: 11

METHOD 625

CAS Number	UG/KG	CAS Number	UG/KG
32-75-9	N-Nitrosodimethylamine . . . 3500 <	100-02-7	4-Nitrophenol 2200 =
95-2	Phenol 3500 <	121-14-2	2,4-Dinitrotoluene 3500 <
44-4	bis(2-Chloroethyl)Ether . . 3500 <	606-20-2	2,6-Dinitrotoluene 3500 <
57-8	2-Chlorophenol 3500 <	84-66-2	Diethylphthalate 3500 <
73-1	1,3-Dichlorobenzene . . . 3500 <	7005-72-3	4-Chlorophenyl-phenylether 3500 <
46-7	1,4-Dichlorobenzene . . . 3500 <	86-73-7	Fluorene 3500 <
50-1	1,2-Dichlorobenzene . . . 3500 <	534-52-1	4,6-Dinitro-2-Methylphenol 17000 <
38-32-9	bis(2-Chloroisopropyl)Ether 3500 <	86-30-6	N-Nitrosodiphenylamine (1) 3500 <
64-7	N-Nitroso-Di-n-Propylamine 3500 <	101-55-3	4-Bromophenyl-phenylether 3500 <
72-1	Hexachloroethane 3500 <	118-74-1	Hexachlorobenzene 3500 <
95-3	Nitrobenzene 3500 <	87-86-5	Pentachlorophenol 17000 <
59-1	Isophorone 3500 <	85-01-8	Phenanthrene 3500 <
75-5	2-Nitrophenol 3500 <	120-12-7	Anthracene 3500 <
105-67-9	2,4-Dimethylphenol 190 =	84-74-2	Di-n-Butylphthalate 330 =
91-1	bis(2-Chloroethoxy)Methane 310 =	206-44-0	Fluoranthene 3500 <
83-2	2,4-Dichlorophenol 3500 <	129-00-0	Pyrene 3500 <
120-82-1	1,2,4-Trichlorobenzene . . 3500 <	85-68-7	Butylbenzylphthalate 3500 <
91-20-3	Naphthalene 3500 <	56-55-3	Benzo(a)Anthracene 3500 <
68-3	Hexachlorobutadiene . . . 3500 <	117-81-7	bis(2-Ethylhexyl)Phthalate 180 =
50-7	4-Chloro-3-Methylphenol . 3500 <	218-01-9	Chrysene 3500 <
77-47-4	Hexachlorocyclopentadiene 3500 <	117-84-0	Di-n-Octyl Phthalate 3500 <
06-2	2,4,6-Trichlorophenol . . 3500 <	205-99-2	Benzo(b)Fluoranthene 3500 <
58-7	2-Chloronaphthalene . . . 3500 <	207-08-9	Benzo(k)Fluoranthene 3500 <
131-11-3	Dimethyl Phthalate 3500 <	50-32-8	Benzo(a)Pyrene 3500 <
96-8	Acenaphthylene 3500 <	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 3500 <
20-2	2,6-Dinitrotoluene 3500 <	53-70-3	Dibenz(a,h)Anthracene . . . 3500 <
32-8	Acenaphthene 3500 <	191-24-2	Benzo(g,h,i)Perylene 3500 <
51-28-5	2,4-Dinitrophenol 17000 <		

(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC

DATA: LAW92684BA #1

SCANS 1 TO 2000

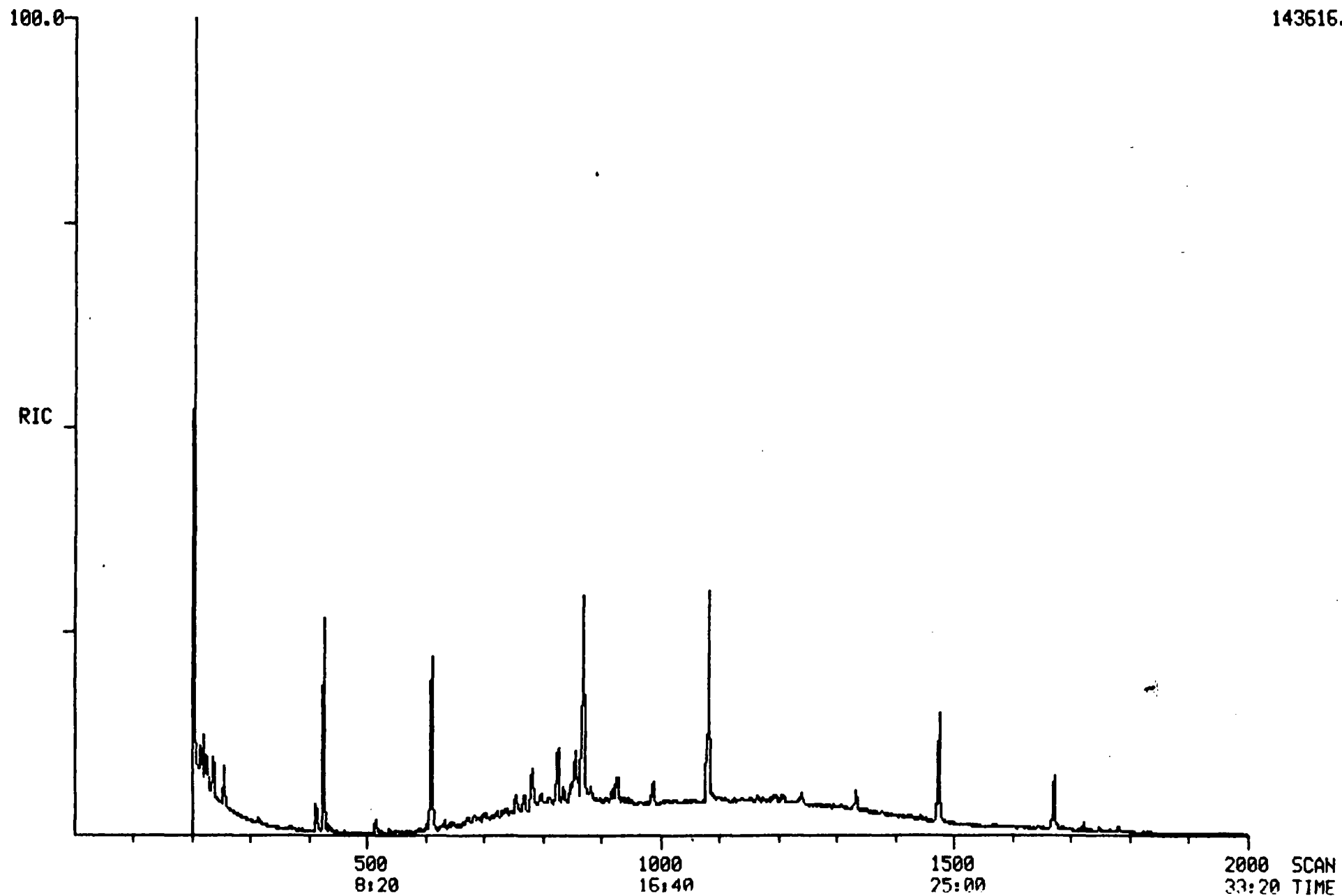
04/30/87 15:03:00

CALI: LAW92684BA #3

SAMPLE: LAW ENG.-HT-2000-87H-MW-5-#10,11--28.7G TO 10ML--13.9PPM I.S.

CONDS.: 40/4-300010-RTX5-20 PSI

RANGE: G 1.2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



4/30/87 15:03:05
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW926848A ACQUIRING
0/30/87 15:03:00 + 0:02 Free sectors: 11196 Scan: 2 of 2000
Sample: LAW ENG. -HT-2080-87H-MW-5-#10,11--28.7G TO 10ML--13.9PPM I. S.
Conds.: 40/4-300@10-RTX5-20 PSI
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 0 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Cont S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Flag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
APC Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/30/87 15:36:29
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	454.4	2000.0	22.7	81482.	41. 41.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093703
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
SB-2A-1
Soil Boring 2-3.5'
Date Sampled: 05/26/87
Date Received: 05/27/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Barium, Soluble</u>	14.9	<u>ppm</u>	06/02/87	1:52 pm	GS
<u>Barium, total</u>	3300	<u>ppm</u>	06/02/87	1:52 pm	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093704
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
SB-2A-2
Soil Boring 3.5-4.5'
Date Sampled: 05/26/87
Date Received: 05/27/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Barium, Soluble</u>	7.4	<u>ppm</u>	06/02/87	1:52 pm	GS
<u>Barium, total</u>	1600	<u>ppm</u>	06/02/87	1:52 pm	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

APPENDIX G
SOUTHERN PETROLEUM LABORATORIES, INC.
WATER ANALYSIS DATA SHEETS

INITIAL FIELD INVESTIGATION SAMPLES

MW-1	MONITOR WELL 1
MW-2	MONITOR WELL 2
MW-3	MONITOR WELL 3
MW-4	MONITOR WELL 4
MW-5	MONITOR WELL 5

FINAL FIELD INVESTIGATION SAMPLES

MW-1A	MONITOR WELL 1
MW-2A	MONITOR WELL 2
MW-3A	MONITOR WELL 3
MW-4A	MONITOR WELL 4
TS-I2	INFLUENT
TS-E	EFFLUENT
TS-P1	SUMP PIT NO. 1
TS-P2	SUMP PIT NO. 2
TS-P3	SUMP PIT NO. 3
TS-P4	SUMP PIT NO. 4



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092685
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample MW-1
Well Water
Date Sampled: 04/18/87
Date Received: 04/20/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Lead total</u>	< 0.05	<u>mg/l</u> 04/21/87	3:30 pm	GS
EPA storet number 01077				
<u>Arsenic total</u>	< 0.05	<u>mg/l</u> 04/23/87	10:16 am	GS
EPA storet number 01002				
<u>Mercury total</u>	128.0	<u>mg/l</u> 04/22/87	10:20 am	GS
EPA storet number 01007				
<u>Barium total</u>	0.22	<u>mg/l</u> 04/21/87	3:00 pm	MGV
EPA storet number 01022				
<u>Cadmium total</u>	< 0.01	<u>mg/l</u> 04/21/87	4:00 pm	GS
EPA storet number 01027				
<u>Chloride</u>	74	<u>mg/l</u> 04/21/87	11:20 am	APM
EPA storet number 00940				
<u>Cromium total</u>	< 0.05	<u>mg/l</u> 04/21/87	4:30 pm	GS
EPA storet number 01034				
<u>Copper total</u>	< 0.05	<u>mg/l</u> 04/22/87	7:52 am	GS
EPA storet number 01042				
<u>Cyanide total</u>	< 0.05	<u>mg/l</u> 05/01/87	4:00 pm	NDW
EPA storet number 00720				
<u>Formaldehyde</u>	< 1	<u>mg/l</u> 05/01/87	5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092685, page 2
Law Engineering

<u>Mercury total</u> EPA storet number 71900	< 0.002	<u>mg/l</u>	04/21/87 10:13 am	GS
<u>Phosphorus</u> EPA storet number 00669	0.68	<u>mg/l</u>	04/21/87 12:00 pm	JA
<u>Manganese total</u> EPA storet number 01055	1.2	<u>mg/l</u>	04/22/87 8:59 am	GS
<u>Nickel total</u> EPA storet number 01067	< 0.05	<u>mg/l</u>	04/22/87 9:18 am	GS
<u>Orthophosphate</u>	< 0.05	<u>mg/l</u>	04/22/87 3:00 pm	JA
<u>Lead total</u> EPA storet number 01051	< 0.05	<u>mg/l</u>	04/21/87 2:52 pm	GS
<u>Phenolics total recoverable</u> EPA storet number 32730	10.3	<u>mg/l</u>	04/23/87 2:30 pm	NDW
<u>Priority Pollutants</u>	enclosure		05/04/87 5:00 pm	DD
<u>Selenium total</u> EPA storet number 01147	< 0.01	<u>mg/l</u>	04/24/87 2:41 pm	GS
<u>Organic carbon total</u> EPA storet number 00680	43	<u>mg/l</u>	04/21/87 2:00 pm	JA
<u>Volatile organics</u>	enclosure			
<u>Zinc total</u> EPA storet number 01092	< 0.05	<u>mg/l</u>	04/22/87 9:46 am	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
Sample ID: 92685
Client Sample ID: MW1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 04/21/87
Date Analyzed: 04/21/87
Dilution Factor: 1.0

METHOD 624

CAS Number		ug/L	CAS Number		ug/L
74-87-3	Chloromethane	10 <	10061-02-6	Trans-1,3-Dichloropropene	5 <
74-83-9	Bromomethane	10 <	79-01-6	Trichloroethene	5 <
75-01-4	Vinyl Chloride	10 <	124-48-1	Dibromochloromethane . . .	5 <
75-00-3	Chloroethane	10 <	79-00-5	1,1,2-Trichloroethane . .	5 <
78-09-2	Methylene Chloride	5 <	71-43-2	Benzene	450
78-35-4	1,1-Dichloroethene	5 <	10061-01-5	cis-1,3-Dichloropropene .	5 <
75-35-3	1,1-Dichloroethane	5 <	110-75-8	2-Chloroethylvinylether .	10 <
156-60-5	Trans-1,2-Dichloroethene .	5 <	75-25-2	Bromoform	5 <
67-66-3	Chloroform	5 <	127-18-4	Tetrachloroethene	5 <
107-06-2	1,2-Dichloroethane	5 <	79-34-5	1,1,2,2-Tetrachloroethane	10 <
71-55-6	1,1,1-Trichloroethane . .	5 <	108-88-3	Toluene	550
5-23-5	Carbon Tetrachloride . . .	5 <	108-90-7	Chlorobenzene	5 <
78-27-4	Bromodichloromethane . . .	5 <	100-41-4	Ethylbenzene	160
78-87-5	1,2-Dichloropropane . . .	5 <			

The Lab ID for data on this page is LAW92685V0.

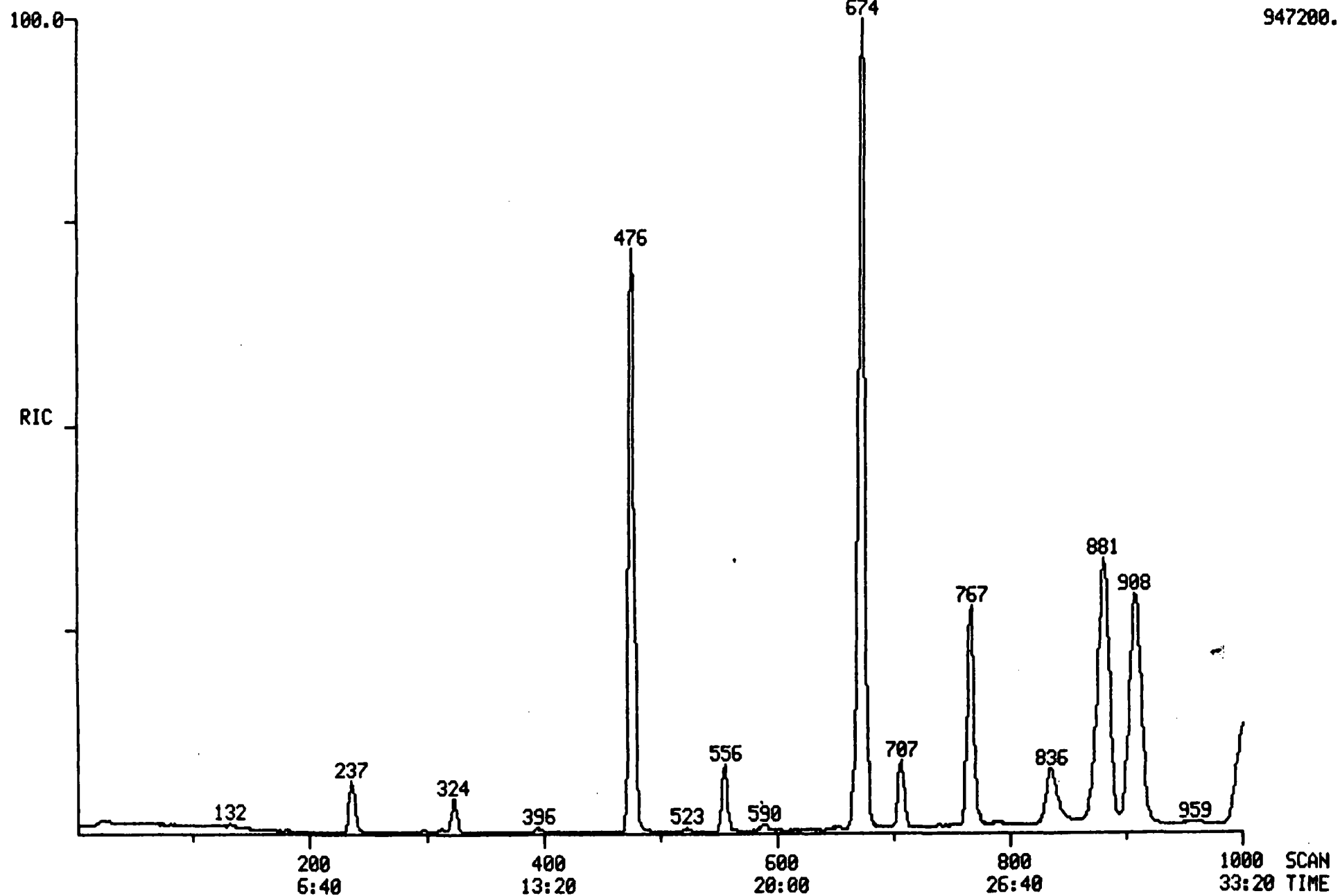
< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC
04/21/87 9:59:00
SAMPLE: LAW--HT208087H-MW1-4/18-
CONDS.: 45/4-22008-VOAS
RANGE: G 1,1000 LABEL: N 0, 4.0

DATA: LAW92685U0 #1
CALI: LAW92685U0 #3

SCANS 1 TO 1000

QUAN: A 0, 1.0 J 0 BASE: U 20, 3



4/21/87 9:59:33
Acquisition started

SCAN 1 OF 1000

Acquire Run 0: LAW92685VD ACQUIRING
4/21/87 9:59:00 + 0:02 Free sectors: 16492 Scan: 1 of 1000
Sample: LAW--HT208087H-MW1-4/18-
Cnds.: 45/4-220@8-VDAS
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DIFED Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: VD Current GC oven tmp: 45 DegC Injector : 220 DegC
Current GC Desc: VD GC elapsed time : 0: 3 min Int. oven : 230 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 45 - 45 - 3.0 3.0 Sweep/Split 39.9 0.0
2 45 - 220 8.0 21.8 24.8 Divert 39.9 4.5
3 220 - 220 - 15.0 39.8
4 220 - 220 - 0.1 39.9

***** SCAN PARAMETERS *****
Low mass: 35 Up: 1.95 L* Top: 0.00
High mass: 260 Down: 0.00 L Bottom: 0.05
Cent S/P: 10 Actual: 43 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 11 Samp Int (ms): 0.800 Inten/ion: 2
Min Peak Width: 15 Min Frag Width %: 79 Min Area: 50
ADC Threshold: 1 Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/21/87 10:33:12
ACQUISITION COMPLETED
SCANS 1 TO 1000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	1000	225.5	2000.0	11.3	37477.	37. 19.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Sample ID: 92685
 Parent Sample ID: MW-1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 04/22/87
 Date Analyzed: 04/30/87
 Dilution Factor: 2.0

METHOD 625

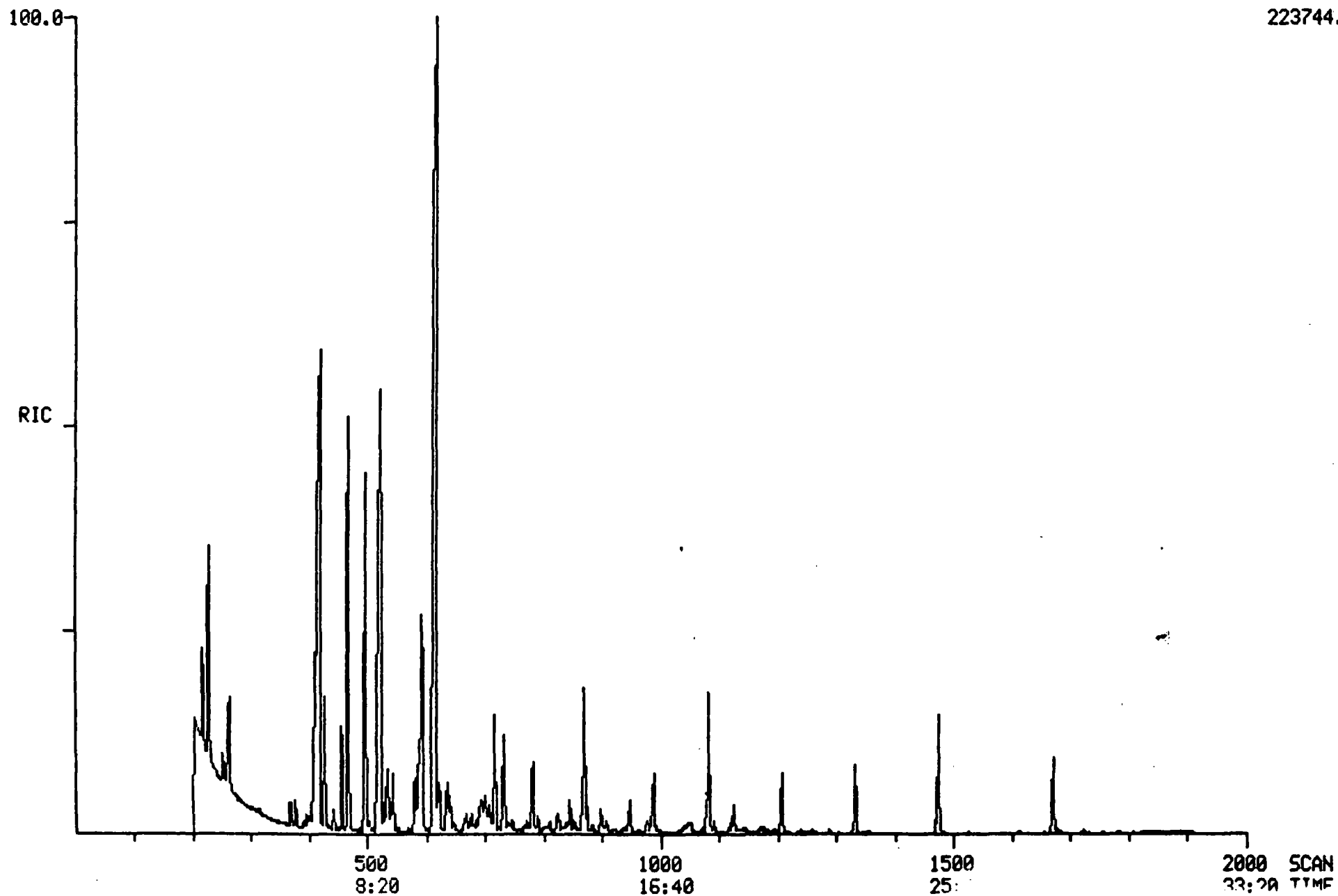
CAS Number	ug/L	CAS Number	ug/L
62-75-9	N-Nitrosodimethylamine . . . 20 <	100-02-7	4-Nitrophenol 100 <
108-95-2	Phenol 1100	121-14-2	2,4-Dinitrotoluene 20 <
101-44-4	bis(2-Chloroethyl)Ether . . . 20 <	606-20-2	2,6-Dinitrotoluene 20 <
95-57-8	2-Chlorophenol 20 <	84-66-2	Diethylphthalate 20 <
50-73-1	1,3-Dichlorobenzene 20 <	7005-72-3	4-Chlorophenyl-phenylether . . . 20 <
106-46-7	1,4-Dichlorobenzene 20 <	86-73-7	Fluorene 29
95-50-1	1,2-Dichlorobenzene 20 <	534-52-1	4,6-Dinitro-2-Methylphenol . . . 100 <
3638-32-9	bis(2-Chloroisopropyl)Ether . . . 20 <	86-30-6	N-Nitrosodiphenylamine (1) . . . 20 <
61-64-7	N-Nitroso-Di-n-Propylamine . . . 20 <	101-55-3	4-Bromophenyl-phenylether . . . 20 <
67-72-1	Hexachloroethane 20 <	118-74-1	Hexachlorobenzene 20 <
98-95-3	Nitrobenzene 20 <	87-86-5	Pentachlorophenol 100 <
71-59-1	Isophorone 20 <	85-01-8	Phenanthrene 20
85-75-5	2-Nitrophenol 20 <	120-12-7	Anthracene 20 <
105-67-9	2,4-Dimethylphenol 370	84-74-2	Di-n-Butylphthalate 65
101-91-1	bis(2-Chloroethoxy)Methane . . . 20 <	206-44-0	Fluoranthene 20 <
100-83-2	2,4-Dichlorophenol 20 <	129-00-0	Pyrene 20 <
120-82-1	1,2,4-Trichlorobenzene 20 <	85-68-7	Butylbenzylphthalate 20 <
91-20-3	Naphthalene 1000	56-55-3	Benzo(a)Anthracene 20 <
84-68-3	Hexachlorobutadiene 20 <	117-81-7	bis(2-Ethylhexyl)Phthalate . . . 20 <
55-50-7	4-Chloro-3-Methylphenol 20 <	218-01-9	Chrysene 20 <
77-47-4	Hexachlorocyclopentadiene 20 <	117-84-0	Di-n-Octyl Phthalate 20 <
84-06-2	2,4,6-Trichlorophenol 20 <	205-99-2	Benzo(b)Fluoranthene 20 <
84-58-7	2-Chloronaphthalene 20 <	207-08-9	Benzo(k)Fluoranthene 20 <
131-11-3	Dimethyl Phthalate 20 <	50-32-8	Benzo(a)Pyrene 20 <
208-96-8	Acenaphthylene 29	193-39-5	Indeno(1,2,3-cd)Pyrene 20 <
606-20-2	2,6-Dinitrotoluene 20 <	53-70-3	Dibenz(a,h)Anthracene 20 <
83-32-9	Acenaphthene 20	191-24-2	Benzo(g,h,i)Perylene 20 <
51-28-5	2,4-Dinitrophenol 100 <		

(1) - Cannot be separated from diphenylamine

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW92685BA #1 SCANS 1 TO 2000
04/30/87 15:55:00 CALI: LAW92685BA #3
SAMPLE: LAW ENG.-HT-2080-87H-MW-1--500ML TO 2ML--0.16PPM I.S.
CONDS.: 40/4-300@10-RTX5-20 PSI
RANGE: G 1.2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

223744.





SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092686
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample MW-2
Well Water
Date Sampled: 04/18/87
Date Received: 04/20/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u>	< 0.05	<u>mg/l</u>	04/21/87 3:30 pm	GS
EPA storet number 01077				
<u>Arsenic total</u>	< 0.05	<u>mg/l</u>	04/23/87 10:16 am	GS
EPA storet number 01002				
<u>Barium total</u>	126.0	<u>mg/l</u>	04/22/87 10:20 am	GS
EPA storet number 01007				
<u>Boron total</u>	0.45	<u>mg/l</u>	04/21/87 3:00 pm	MGV
EPA storet number 01022				
<u>Cadmium total</u>	< 0.01	<u>mg/l</u>	04/21/87 4:00 pm	GS
EPA storet number 01027				
<u>Chloride</u>	100	<u>mg/l</u>	04/21/87 11:20 am	APM
EPA storet number 00940				
<u>Chromium total</u>	< 0.05	<u>mg/l</u>	04/21/87 4:30 pm	GS
EPA storet number 01034				
<u>Copper total</u>	< 0.05	<u>mg/l</u>	04/22/87 7:52 am	GS
EPA storet number 01042				
<u>Cyanide total</u>	< 0.05	<u>mg/l</u>	05/01/87 4:00 pm	NDW
EPA storet number 00720				
<u>Formaldehyde</u>	< 1	<u>mg/l</u>	05/01/87 5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092686, page 2
Law Engineering

<u>Mercury total</u> EPA storet number 71900	< 0.002	<u>mg/l</u> 04/21/87 10:13 am	GS
<u>Phosphorus</u> EPA storet number 00669	1.11	<u>mg/l</u> 04/21/87 12:00 pm	JA
<u>Manganese total</u> EPA storet number 01055	1.1	<u>mg/l</u> 04/22/87 8:59 am	GS
<u>Nickel total</u> EPA storet number 01067	0.07	<u>mg/l</u> 04/22/87 9:18 am	GS
<u>Orthophosphate</u>	< 0.05	<u>mg/l</u> 04/22/87 3:00 pm	JA
<u>Lead total</u> EPA storet number 01051	< 0.05	<u>mg/l</u> 04/21/87 2:52 pm	GS
<u>Phenolics total recoverable</u> EPA storet number 32730	3.6	<u>mg/l</u> 04/23/87 2:30 pm	NDW
<u>Priority Pollutants</u>	enclosure	05/04/87 5:00 pm	DD
<u>Selenium total</u> EPA storet number 01147	< 0.01	<u>mg/l</u> 04/24/87 2:41 pm	GS
<u>Organic carbon total</u> EPA storet number 00680	31	<u>mg/l</u> 04/21/87 2:00 pm	JA
<u>Volatile organics</u>	enclosure		
<u>Zinc total</u> EPA storet number 01092	< 0.05	<u>mg/l</u> 04/22/87 9:46 am	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastarhian
Daniel D. Pastarhian

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
Lab Sample ID: 92686
Client Sample ID: MW2

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 04/21/87
Date Analyzed: 04/21/87
Dilution Factor: 50

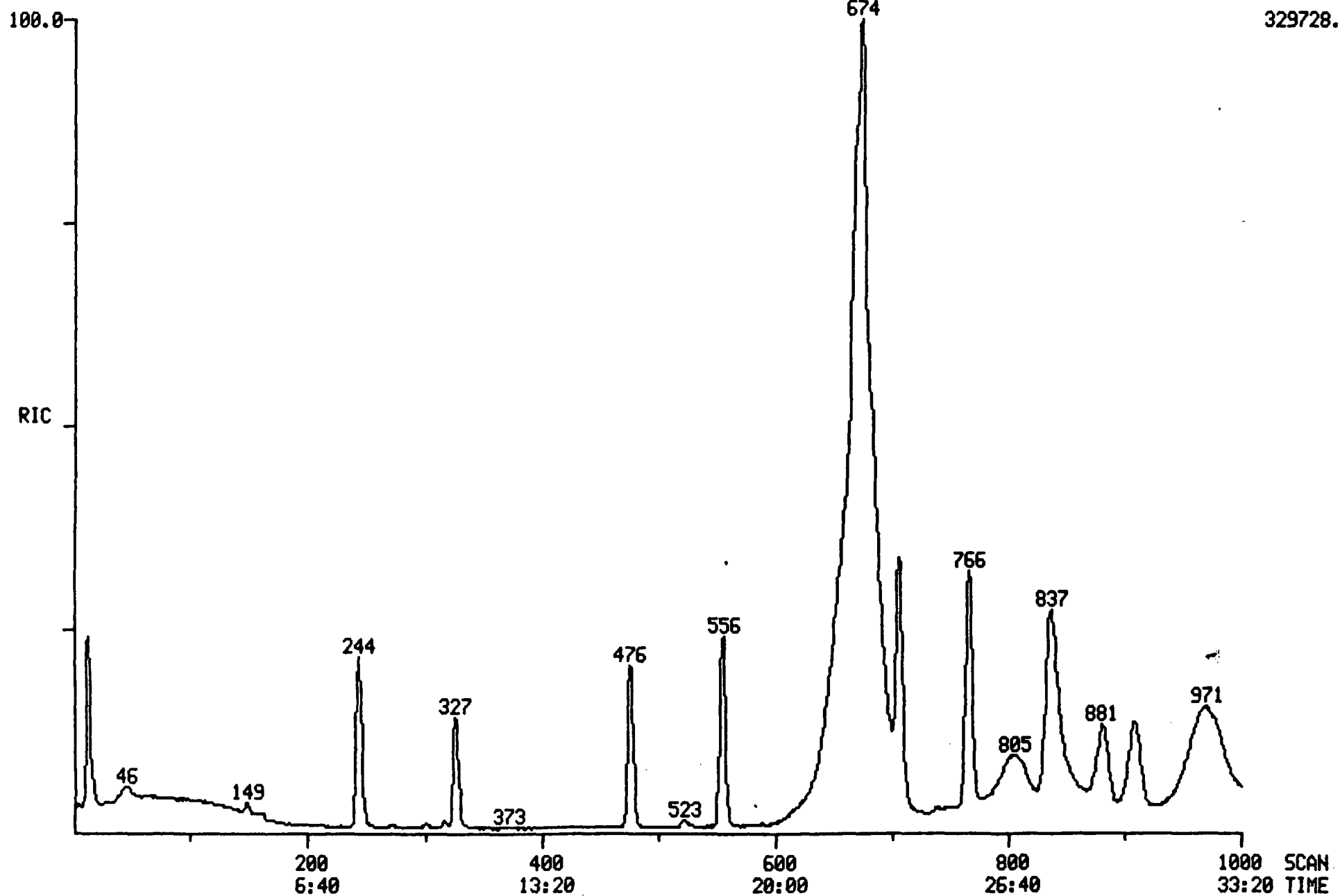
METHOD 624

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	500	<	10061-02-6	Trans-1,3-Dichloropropene	250	<
75-83-9	Bromomethane	500	<	79-01-6	Trichloroethene	250	<
75-01-4	Vinyl Chloride	500	<	124-48-1	Dibromochloromethane . . .	250	<
75-00-3	Chloroethane	500	<	79-00-5	1,1,2-Trichloroethane . .	250	<
75-09-2	Methylene Chloride	250	<	71-43-2	Benzene	2300	
75-35-4	1,1-Dichloroethene	250	<	10061-01-5	cis-1,3-Dichloropropene .	250	<
75-35-3	1,1-Dichloroethane	250	<	110-75-8	2-Chloroethylvinylether .	500	<
106-60-5	Trans-1,2-Dichloroethene .	250	<	75-25-2	Bromoform	250	<
66-66-3	Chloroform	250	<	127-18-4	Tetrachloroethene	250	<
107-08-2	1,2-Dichloroethane	250	<	78-34-5	1,1,2,2-Tetrachloroethane	500	<
71-55-6	1,1,1-Trichloroethane . .	250	<	108-88-3	Toluene	3600	
50-23-5	Carbon Tetrachloride . . .	250	<	108-90-7	Chlorobenzene	250	<
75-27-4	Bromodichloromethane . . .	250	<	100-41-4	Ethylbenzene	2800	
78-87-5	1,2-Dichloropropane . . .	250	<				

The Lab ID for data on this page is LAW92686VO.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW92686V0 #1 SCANS 1 TO 1000
04/21/87 12:10:00 CALI: LAW92686V0 #3
SAMPLE: LAW--HT208087H-MW2-4/18-1ML-50MLS
CONDS.: 45/4-22008-UOAS
RANGE: G 1,1000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



4/21/87 12:10:58

SCAN 1 OF 1000

Acquisition started

Require

Run 0: LAW92686V0

ACQUIRING

4/21/87 12:10:00 + 0:02

Free sectors: 16121

Scan: 1 of 1000

Sample: LAW--HT208087H-MW2-4/18-1ML-50MLS

conds.: 45/4-220@8-VOAS

Formula:

Instrument: A

Weight: 1.000

Submitted by:

Analyst: DIFED

Acct. No:

GC PARAMETERS

Loaded GC Desc: VD Current GC oven tmp: 45 DegC Injector : 220 DegC

Current GC Desc: VD GC elapsed time : 0: 3 min Int. oven : 230 DegC

Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close

1 45 - 45 - 3.0 3.0 Sweep/Split 39.9 0.0

2 45 - 220 8.0 21.8 24.8 Divert 39.9 4.5

3 220 - 220 - 15.0 39.8

4 220 - 220 - 0.1 39.9

SCAN PARAMETERS

Low mass: 35

Up: 1.95 L*

Top: 0.00

High mass: 260

Down: 0.00 L

Bottom: 0.05

Sent S/P: 10 Actual: 43

Samp Int (ms): 0.200

Peak Width: 1000.

Frag S/P: 10 Actual: 11

Samp Int (ms): 0.800

Inten/ion: 2

Min Peak Width: 15

Min Frag Width %: 79

Min Area: 50

ADC Threshold: 1

Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type Q
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/21/87 12:44:21

ACQUISITION COMPLETED

SCANS 1 TO 1000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	1000	223.1	2000.0	11.2	40895.	41. 20.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 92686
 Client Sample ID: MW-2

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 04/22/87
 Date Analyzed: 05/01/87
 Dilution Factor: 80

METHOD 625

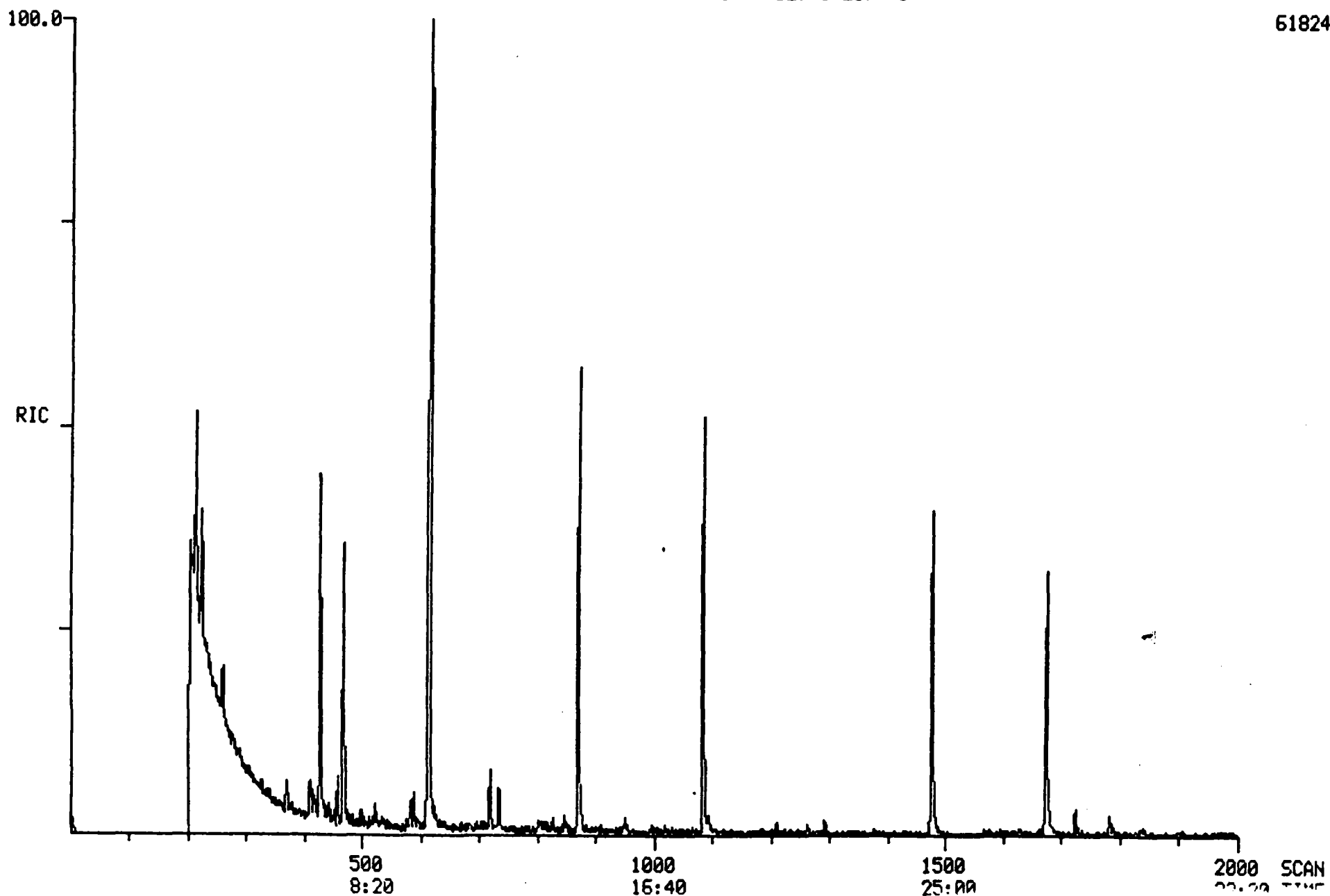
CAS Number		ug/L		CAS Number		ug/L
67-75-9	N-Nitrosodimethylamine . . .	800	<	100-02-7	4-Nitrophenol	4000 <
108-95-2	Phenol	240	=	121-14-2	2,4-Dinitrotoluene	800 <
111-44-4	bis(2-Chloroethyl)Ether . . .	800	<	606-20-2	2,6-Dinitrotoluene	800 <
95-57-8	2-Chlorophenol	800	<	84-66-2	Diethylphthalate	800 <
501-73-1	1,3-Dichlorobenzene	800	<	7005-72-3	4-Chlorophenyl-phenylether	800 <
106-46-7	1,4-Dichlorobenzene	800	<	86-73-7	Fluorene	140 =
95-50-1	1,2-Dichlorobenzene	800	<	534-52-1	4,6-Dinitro-2-Methylphenol	4000 <
3638-32-9	bis(2-Chloroisopropyl)Ether	800	<	86-30-6	N-Nitrosodiphenylamine (1)	800 <
621-64-7	N-Nitroso-Di-n-Propylamine	800	<	101-55-3	4-Bromophenyl-phenylether	800 <
67-72-1	Hexachloroethane	800	<	118-74-1	Hexachlorobenzene	800 <
91-95-3	Nitrobenzene	800	<	87-86-5	Pentachlorophenol	4000 <
71-59-1	Isophorone	800	<	85-01-8	Phenanthrene	400 =
88-75-5	2-Nitrophenol	800	<	120-12-7	Anthracene	120 =
105-67-9	2,4-Dimethylphenol	500	=	84-74-2	Di-n-Butylphthalate	150 =
101-91-1	bis(2-Chloroethoxy)Methane	800	<	206-44-0	Fluoranthene	190 =
120-83-2	2,4-Dichlorophenol	800	<	129-00-0	Pyrene	95 =
120-82-1	1,2,4-Trichlorobenzene . . .	800	<	85-68-7	Butylbenzylphthalate	800 <
91-20-3	Naphthalene	11000		56-55-3	Benzo(a)Anthracene	86 =
81-68-3	Hexachlorobutadiene	800	<	117-81-7	bis(2-Ethylhexyl)Phthalate	800 <
59-50-7	4-Chloro-3-Methylphenol . . .	800	<	218-01-9	Chrysene	83 =
71-47-4	Hexachlorocyclopentadiene	800	<	117-84-0	Di-n-Octyl Phthalate	800 <
101-82-2	2,4,6-Trichlorophenol	800	<	205-99-2	Benzo(b)Fluoranthene	800 <
101-98-7	2-Chloronaphthalene	800	<	207-08-9	Benzo(k)Fluoranthene	800 <
131-11-3	Dimethyl Phthalate	800	<	50-32-8	Benzo(a)Pyrene	800 <
218-96-8	Acenaphthylene	200	=	193-39-5	Indeno(1,2,3-cd)Pyrene . . .	800 <
606-20-2	2,6-Dinitrotoluene	800	<	53-70-3	Dibenz(a,h)Anthracene	800 <
83-32-9	Acenaphthene	130	=	191-24-2	Benzo(g,h,i)Perylene	800 <
51-28-5	2,4-Dinitrophenol	4000	<			

(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW2686ABA #1 SCANS 1 TO 2000
05/01/87 11:36:00 CALI: LAW2686ABA #3
SAMPLE: LAW ENG.--HT-2080-87H--MW-2--500ML TO 40ML---3.2UG/ML I.S.
CONDS.: 40/4-300@10/8--RTX5--20PSI--BN
RANGE: G 1.2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3





SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092687
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample MW-3
Well Water
Date Sampled: 04/17/87
Date Received: 04/20/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u>	< 0.05	<u>mg/l</u> 04/21/87	3:30 pm	GS
EPA storet number 01077				
<u>Arsenic total</u>	< 0.05	<u>mg/l</u> 04/23/87	10:16 am	GS
EPA storet number 01002				
<u>Barium total</u>	116.0	<u>mg/l</u> 04/22/87	10:20 am	GS
EPA storet number 01007				
<u>Boron total</u>	0.68	<u>mg/l</u> 04/21/87	3:00 pm	MGV
EPA storet number 01022				
<u>Cadmium total</u>	< 0.01	<u>mg/l</u> 04/21/87	4:00 pm	GS
EPA storet number 01027				
<u>Chloride</u>	144	<u>mg/l</u> 04/21/87	11:20 am	APM
EPA storet number 00940				
<u>Chromium total</u>	< 0.05	<u>mg/l</u> 04/21/87	4:30 pm	GS
EPA storet number 01034				
<u>Copper total</u>	< 0.05	<u>mg/l</u> 04/22/87	7:52 am	GS
EPA storet number 01042				
<u>Cyanide total</u>	< 0.05	<u>mg/l</u> 05/01/87	4:00 pm	NDW
EPA storet number 00720				
<u>Formaldehyde</u>	< 1	<u>mg/l</u> 05/01/87	5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092687, page 2
Law Engineering

Mercury total < 0.002 mg/l 04/21/87 10:13 am GS
EPA storet number 71900

Phosphorus 1.25 mg/l 04/21/87 12:00 pm JA
EPA storet number 00669

Manganese total 0.96 mg/l 04/22/87 8:59 am GS
EPA storet number 01055

Nickel total 0.08 mg/l 04/22/87 9:18 am GS
EPA storet number 01067

Orthophosphate < 0.05 mg/l 04/22/87 3:00 pm JA

Lead total < 0.05 mg/l 04/21/87 2:52 pm GS
EPA storet number 01051

Phenolics total recoverable 0.51 mg/l 04/23/87 2:30 pm NDW
EPA storet number 32730

Priority Pollutants enclosure 05/04/87 5:00 pm DD

Selenium total < 0.01 mg/l 04/24/87 2:41 pm GS
EPA storet number 01147

Organic carbon total 29 mg/l 04/21/87 2:00 pm JA
EPA storet number 00680

Volatile organics enclosure 04/16/87 5:00 pm WD

Zinc total < 0.05 mg/l 04/22/87 9:46 am GS
EPA storet number 01092

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec

Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
Sample ID: 92687
Client Sample ID: MW3

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 04/21/87
Date Analyzed: 04/21/87
Dilution Factor: 50

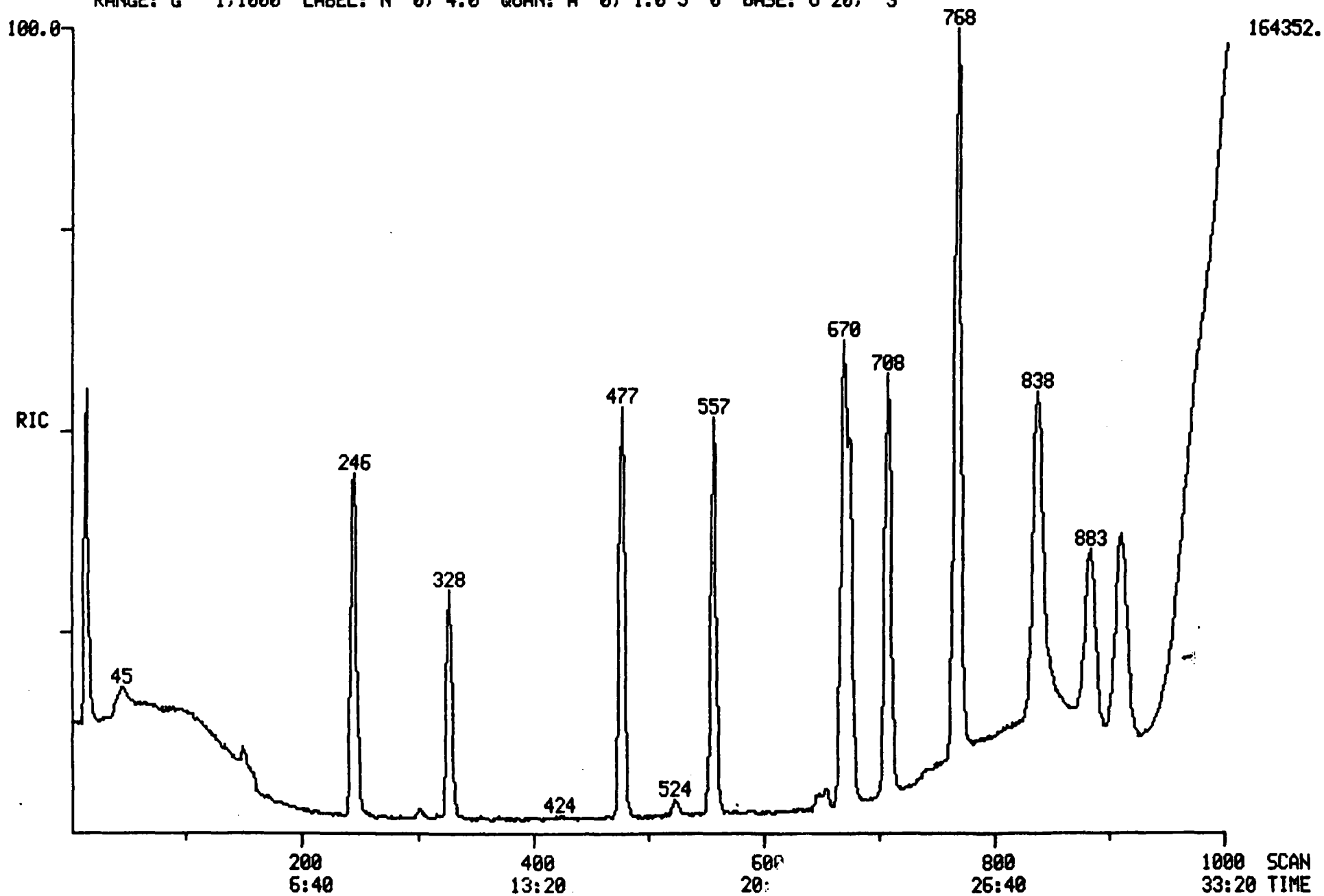
METHOD 624

CAS Number	ug/L	CAS Number	ug/L
4-7-3 Chloromethane	500 <	10061-02-6 Trans-1,3-Dichloropropene	250 <
4-3-9 Bromomethane	500 <	79-01-6 Trichloroethene	250 <
5-01-4 Vinyl Chloride	500 <	124-48-1 Dibromochloromethane . . .	250 <
5-00-3 Chloroethane	500 <	79-00-5 1,1,2-Trichloroethane . .	250 <
5-9-2 Methylene Chloride	250 <	71-43-2 Benzene	2800
5-35-4 1,1-Dichloroethene	250 <	10061-01-5 cis-1,3-Dichloropropene .	250 <
5-35-3 1,1-Dichloroethane	250 <	110-75-8 2-Chloroethylvinylether .	500 <
5-60-5 Trans-1,2-Dichloroethene .	250 <	75-25-2 Bromoform	250 <
7-6-3 Chloroform	250 <	127-18-4 Tetrachloroethene	250 <
07-06-2 1,2-Dichloroethane	250 <	79-34-5 1,1,2,2-Tetrachloroethane	500 <
1-5-6 1,1,1-Trichloroethane . .	250 <	108-88-3 Toluene	1900
6-3-5 Carbon Tetrachloride . . .	250 <	108-90-7 Chlorobenzene	250 <
5-27-4 Bromodichloromethane . . .	250 <	100-41-4 Ethylbenzene	4200
8-87-5 1,2-Dichloropropane . . .	250 <		

The Lab ID for data on this page is LAW92687V0.

- Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW92687UO #1 SCANS 1 TO 1000
04/21/87 13:33:00 CALI: LAW92687UO #3
SAMPLE: LAW--HT208087H-MW3-4/18-1ML-50MLS
CONDS.: 45/4-22008-UOAS
RANGE: G 1,1000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



4/21/87 13:33:43

SCAN 1 OF 1000

Acquisition started

Acquire Run 0: LAW92687VD ACQUIRING
04/21/87 13:33:00 + 0:02 Free sectors: 15733 Scan: 1 of 1000
Sample: LAW--HT208087H-MW3-4/18-1ML-50MLS
Cands.: 45/4-220@B-VDAS
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DIFED Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: VD Current GC oven tmp: 45 DegC Injector : 220 DegC
Current GC Desc: VD GC elapsed time : 0: 3 min Int. oven : 230 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 45 - 45 - 3.0 3.0 Sweep/Split 39.9 0.0
2 45 - 220 8.0 21.8 24.8 Divert 39.9 4.5
220 - 220 - 15.0 39.8
220 - 220 - 0.1 39.9

***** SCAN PARAMETERS *****
Low mass: 35 Up: 1.95 L* Top: 0.00
High mass: 260 Down: 0.00 L Bottom: 0.05
Cent S/P: 10 Actual: 43 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 11 Samp Int (ms): 0.800 Inten/ion: 2
Min Peak Width: 15 Min Frag Width %: 79 Min Area: 50
ADC Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/21/87 14:16:26

ACQUISITION COMPLETED

SCANS 1 TO 1000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	1000	227.7	2000.0	11.4	43729.	44. 22.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Sample ID: 92687
 Client Sample ID: MW-3

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 04/22/87
 Date Analyzed: 05/01/87
 Dilution Factor: 270

METHOD 625

CAS Number	ug/L	CAS Number	ug/L
75-9	N-Nitrosodimethylamine . . . 2700 <	100-02-7	4-Nitrophenol 14000 <
95-2	Phenol 2700 <	121-14-2	2,4-Dinitrotoluene 2700 <
111-44-4	bis(2-Chloroethyl)Ether . . . 2700 <	606-20-2	2,6-Dinitrotoluene 2700 <
35-57-8	2-Chlorophenol 2700 <	84-66-2	Diethylphthalate 2700 <
73-1	1,3-Dichlorobenzene 2700 <	7005-72-3	4-Chlorophenyl-phenylether 2700 <
46-7	1,4-Dichlorobenzene 2700 <	86-73-7	Fluorene 890 =
50-1	1,2-Dichlorobenzene 2700 <	534-52-1	4,6-Dinitro-2-Methylphenol 14000 <
38-32-9	bis(2-Chloroisopropyl)Ether 2700 <	86-30-6	N-Nitrosodiphenylamine (1) 2700 <
64-7	N-Nitroso-Di-n-Propylamine 2700 <	101-55-3	4-Bromophenyl-phenylether 2700 <
72-1	Hexachloroethane 2700 <	118-74-1	Hexachlorobenzene 2700 <
95-3	Nitrobenzene 2700 <	87-86-5	Pentachlorophenol 14000 <
59-1	Isophorone 2700 <	85-01-8	Phenanthrene 3000
75-5	2-Nitrophenol 2700 <	120-12-7	Anthracene 1100 =
105-67-9	2,4-Dimethylphenol 2700 <	84-74-2	Di-n-Butylphthalate 220 =
91-1	bis(2-Chloroethoxy)Methane 2700 <	206-44-0	Fluoranthene 1700 =
83-2	2,4-Dichlorophenol 2700 <	129-00-0	Pyrene 810 =
120-82-1	1,2,4-Trichlorobenzene . . . 2700 <	85-68-7	Butylbenzylphthalate . . . 2700 <
20-3	Naphthalene 18000	56-55-3	Benzo(a)Anthracene 550 =
68-3	Hexachlorobutadiene 2700 <	117-81-7	bis(2-Ethylhexyl)Phthalate 2700 <
59-50-7	4-Chloro-3-Methylphenol . . . 2700 <	218-01-9	Chrysene 570 =
47-4	Hexachlorocyclopentadiene 2700 <	117-84-0	Di-n-Octyl Phthalate . . . 2700 <
06-2	2,4,6-Trichlorophenol 2700 <	205-99-2	Benzo(b)Fluoranthene . . . 370 =
58-7	2-Chloronaphthalene 2700 <	207-08-9	Benzo(k)Fluoranthene . . . 400 =
131-11-3	Dimethyl Phthalate 2700 <	50-32-8	Benzo(a)Pyrene 410 =
8-96-8	Acenaphthylene 470 =	193-39-5	Indeno(1,2,3-cd)Pyrene . . 170 =
6-20-2	2,6-Dinitrotoluene 2700 <	53-70-3	Dibenz(a,h)Anthracene . . 2700 <
83-32-9	Acenaphthene 1100 =	191-24-2	Benzo(g,h,i)Perylene . . . 270 =
28-5	2,4-Dinitrophenol 14000 <		

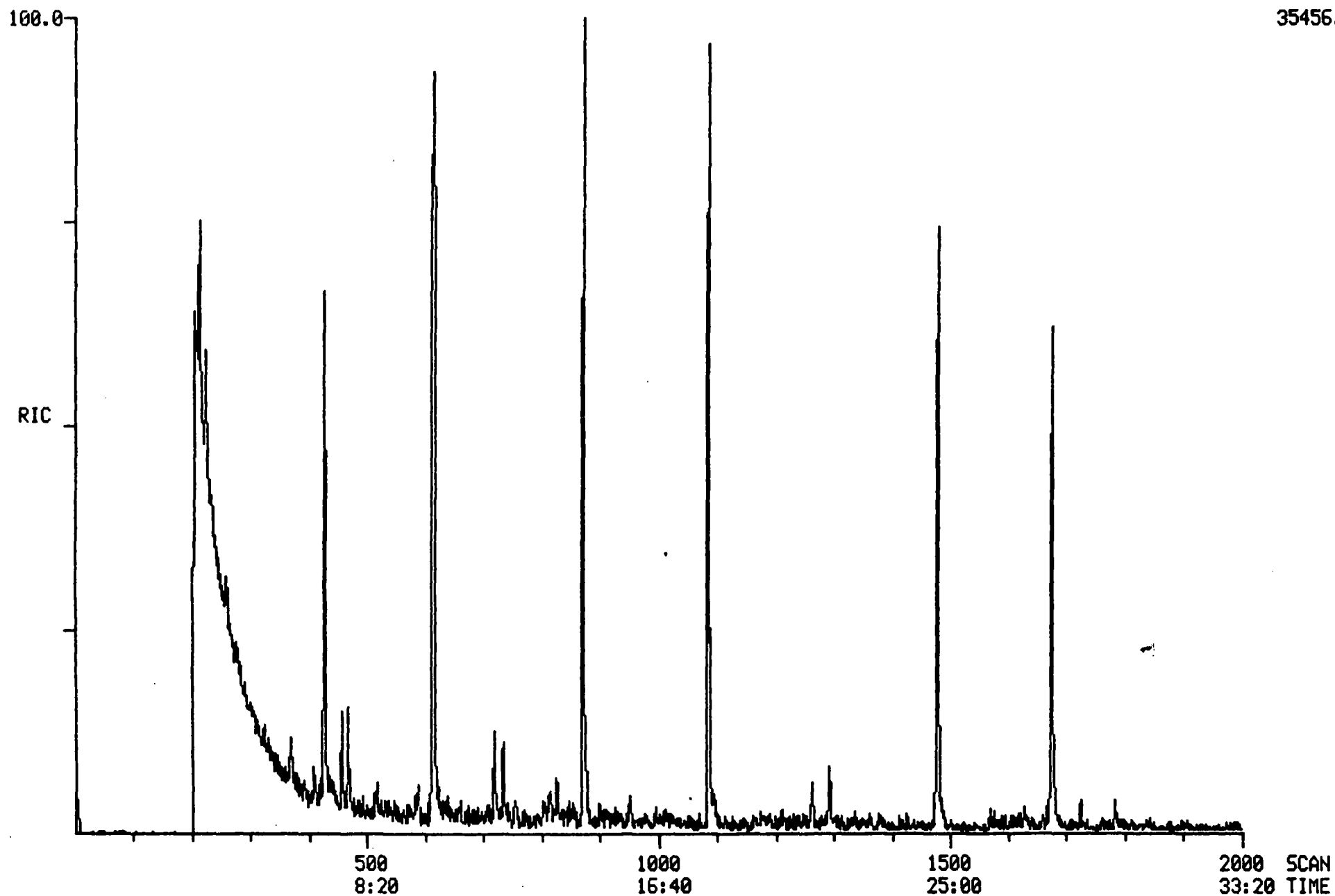
(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW2687ABA #1 SCANS 1 TO 2000
05/01/87 13:32:00 CALI: LAW2687ABA #3
SAMPLE: LAW ENG.--HT-2080-87H--MW-3--370ML TO 200ML--21.6UG/ML I.S.
CONDS.: 40/4-300@10/8--RTX5--20PSI--BN
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

35456.



5/1/87 13:32:04
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW2687ABA ACQUIRING
05/01/87 13:32:00 + 0:03 Free sectors: 7539 Scan: 3 of 2000
Sample: LAW ENG.--HT-2080-87H--MW-3--370ML TO 200ML--21.6UG/ML I.S.
Conds.: 40/4-300@10/B--RTX5--20PSI--BN
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 37 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 0 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Cent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
ADC Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

5/1/87 14:08:27
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	553.7	2000.0	27.7	38820.	19. 19.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092688
Invoice Number 216935
May 05, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: HT-2080-87H
Metropolitan LIC/Austin
Sample MW-4
Well Water
Date Sampled: 04/17/87
Date Received: 04/20/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u> EPA storet number 01077	< 0.05	<u>mg/l</u> 04/21/87	3:30 pm	GS
<u>Arsenic total</u> EPA storet number 01002	< 0.05	<u>mg/l</u> 04/23/87	10:16 am	GS
<u>Mercury total</u> EPA storet number 01007	116.0	<u>mg/l</u> 04/22/87	10:20 am	GS
<u>Boron total</u> EPA storet number 01022	0.45	<u>mg/l</u> 04/21/87	3:00 pm	MGV
<u>Cadmium total</u> EPA storet number 01027	< 0.01	<u>mg/l</u> 04/21/87	4:00 pm	GS
<u>Chloride</u> EPA storet number 00940	139	<u>mg/l</u> 04/21/87	11:20 am	APM
<u>Chromium total</u> EPA storet number 01034	< 0.05	<u>mg/l</u> 04/21/87	4:30 pm	GS
<u>Copper total</u> EPA storet number 01042	< 0.05	<u>mg/l</u> 04/22/87	7:52 am	GS
<u>Cyanide total</u> EPA storet number 00720	< 0.05	<u>mg/l</u> 05/01/87	4:00 pm	NDW
<u>Formaldehyde</u>	< 1	<u>mg/l</u> 05/01/87	5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092688, page 2
Law Engineering

<u>Mercury total</u> EPA storet number 71900	< 0.002	<u>mg/l</u>	04/21/87 10:13 am	GS
<u>Phosphorus</u> EPA storet number 00669	0.68	<u>mg/l</u>	04/21/87 12:00 pm	JA
<u>Manganese total</u> EPA storet number 01055	1.5	<u>mg/l</u>	04/22/87 8:59 am	GS
<u>Nickel total</u> EPA storet number 01067	< 0.05	<u>mg/l</u>	04/22/87 9:18 am	GS
<u>Orthophosphate</u>	< 0.05	<u>mg/l</u>	04/22/87 3:00 pm	JA
<u>Lead total</u> EPA storet number 01051	< 0.05	<u>mg/l</u>	04/21/87 2:52 pm	GS
<u>Phenolics total recoverable</u> EPA storet number 32730	< 0.05	<u>mg/l</u>	04/23/87 2:30 pm	NDW
<u>Priority Pollutants</u>	enclosure		05/04/87 5:00 pm	DD
<u>Selenium total</u> EPA storet number 01147	< 0.01	<u>mg/l</u>	04/24/87 2:41 pm	GS
<u>Organic carbon total</u> EPA storet number 00680	23	<u>mg/l</u>	04/21/87 2:00 pm	JA
<u>Volatile organics</u>	enclosure		04/16/87 5:00 pm	WD
<u>Zinc total</u> EPA storet number 01092	< 0.05	<u>mg/l</u>	04/22/87 9:46 am	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
Lab Sample ID: 92688
Client Sample ID: MW4

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 04/21/87
Date Analyzed: 04/21/87
Dilution Factor: 1.0

METHOD 624

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	10	<	10061-02-6	Trans-1,3-Dichloropropene	5	<
79-83-9	Bromomethane	10	<	79-01-6	Trichloroethene	5	<
75-01-4	Vinyl Chloride	10	<	124-48-1	Dibromochloromethane . . .	5	<
75-00-3	Chloroethane	10	<	79-00-5	1,1,2-Trichloroethane . .	5	<
75-09-2	Methylene Chloride	5	<	71-43-2	Benzene	5	<
75-35-4	1,1-Dichloroethene	5	<	10061-01-5	cis-1,3-Dichloropropene .	5	<
75-35-3	1,1-Dichloroethane	5	<	110-75-8	2-Chloroethylvinylether .	10	<
156-60-5	Trans-1,2-Dichloroethene .	5	<	75-25-2	Bromoform	5	<
66-66-3	Chloroform	5	<	127-18-4	Tetrachloroethene	5	<
107-06-2	1,2-Dichloroethane	5	<	79-34-5	1,1,2,2-Tetrachloroethane	10	<
71-55-6	1,1,1-Trichloroethane . .	5	<	108-88-3	Toluene	5	<
56-23-5	Carbon Tetrachloride . . .	5	<	108-90-7	Chlorobenzene	5	<
75-27-4	Bromodichloromethane . . .	5	<	100-41-4	Ethylbenzene	5	<
78-87-5	1,2-Dichloropropane . . .	5	<				

The Lab ID for data on this page is LAW92688VO.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC

04/21/87 14:29:00

DATA: LAW92688U0 #1

SCANS 1 TO 1000

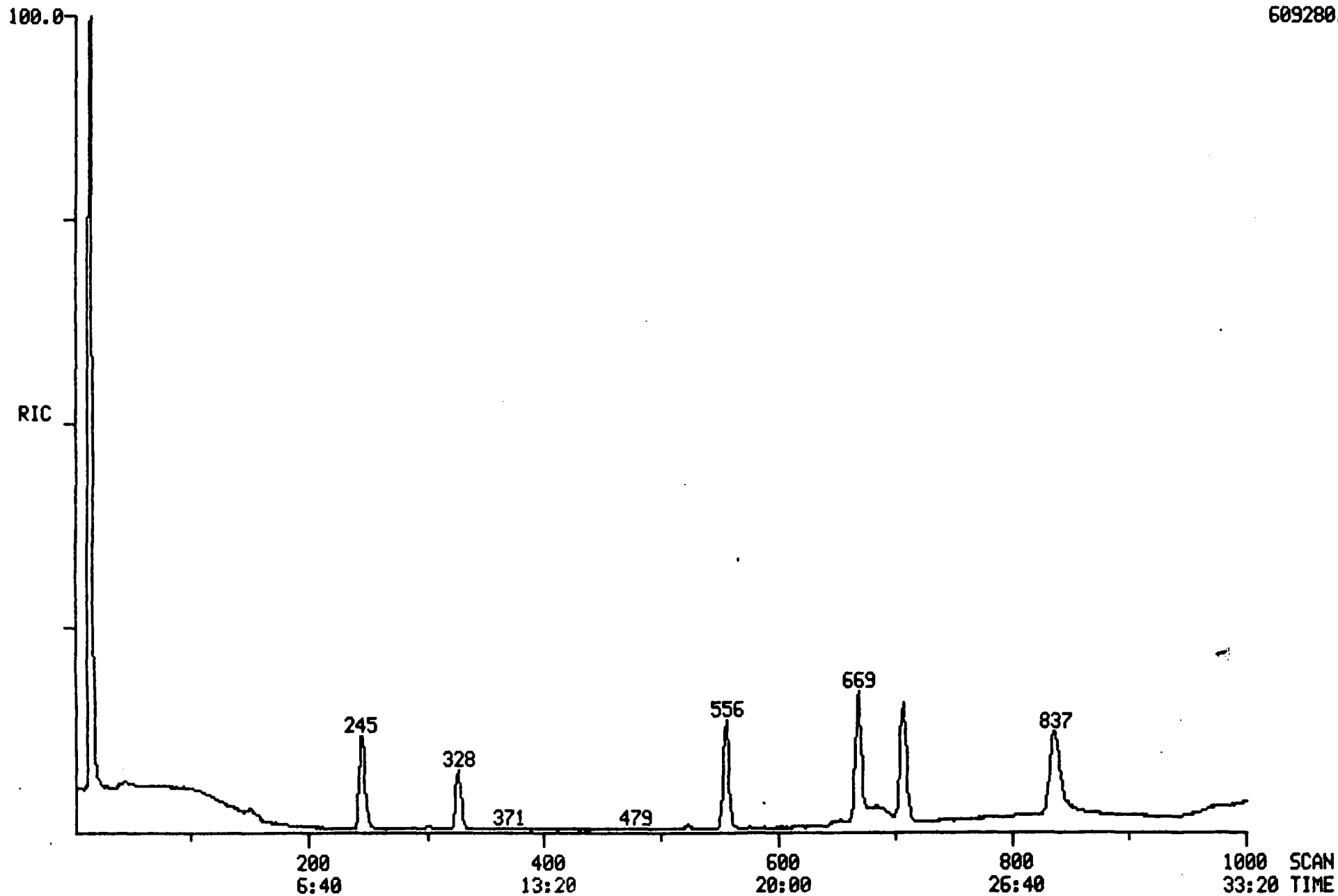
CALI: LAW92688U0 #3

SAMPLE: LAW--HT208087H-MW4-4/17/87--(X 1)

COND5.: 45/4-22008-UOAS

RANGE: G 1,1000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

609280.



4/21/87 14:29:49
Acquisition started

SCAN 1 OF 1000

Acquire Run 0: LAW92688V0 ACQUIRING
4/21/87 14:29:00 + 0:02 Free sectors: 15322 Scan: 1 of 1000
Sample: LAW--HT208087H-MW4-4/17/87--(X 1)
Cnds.: 45/4-220@B-VDAS
Formula:
Submitted by: Instrument: A Weight: 1.000
Analyst: DIFEO Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: VD Current GC oven tmp: 45 DegC Injector : 220 DegC
Current GC Desc: VD GC elapsed time : 0: 0 min Int. oven : 230 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 45 - 45 - 3.0 3.0 Sweep/Split 39.9 0.0
2 45 - 220 8.0 21.8 24.8 Divert 39.9 4.5
3 220 - 220 - 15.0 39.8
4 220 - 220 - 0.1 39.9

***** SCAN PARAMETERS *****
Low mass: 35 Up: 1.95 L* Top: 0.00
High mass: 260 Down: 0.00 L Bottom: 0.05
Cent S/P: 10 Actual: 43 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 11 Samp Int (ms): 0.800 Inten/ion: 2
Min Peak Width: 15 Min Frag Width %: 79 Min Area: 50
ADC Threshold: 1 Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

4/21/87 15:05:31
ACQUISITION COMPLETED
SCANS 1 TO 1000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	1000	218.5	2000.0	10.9	38478.	38. 19.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Sample ID: 92688
 Client Sample ID: MW-4

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 04/22/87
 Date Analyzed: 05/01/87
 Dilution Factor: 2.0

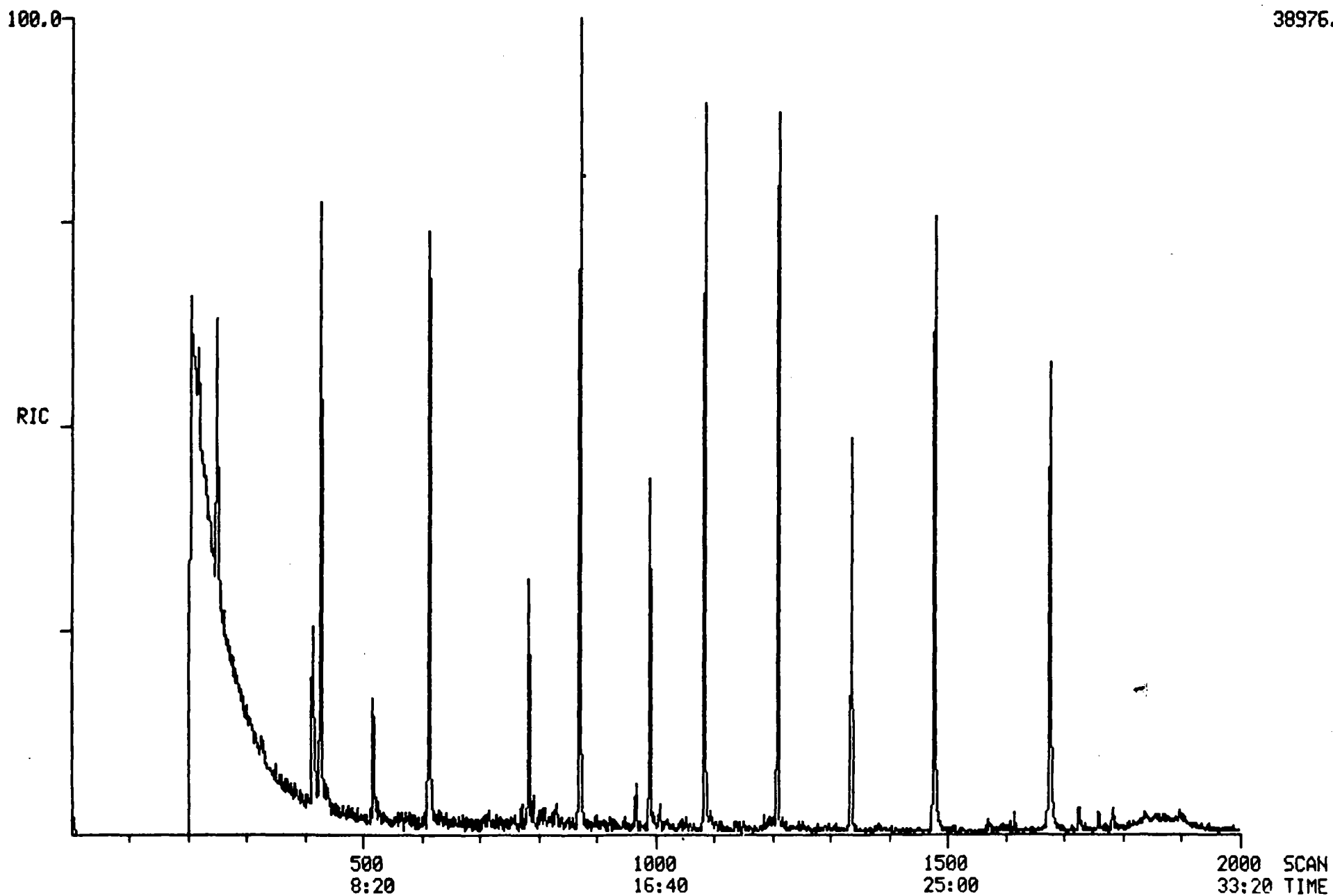
METHOD 625

CAS Number		ug/L		CAS Number		ug/L	
62-75-9	N-Nitrosodimethylamine	20	<	100-02-7	4-Nitrophenol	100	<
108-95-2	Phenol	20	<	121-14-2	2,4-Dinitrotoluene	20	<
111-44-4	bis(2-Chloroethyl)Ether	20	<	606-20-2	2,6-Dinitrotoluene	20	<
95-57-8	2-Chlorophenol	20	<	84-66-2	Diethylphthalate	20	<
501-73-1	1,3-Dichlorobenzene	20	<	7005-72-3	4-Chlorophenyl-phenylether	20	<
106-46-7	1,4-Dichlorobenzene	20	<	86-73-7	Fluorene	20	<
95-50-1	1,2-Dichlorobenzene	20	<	534-52-1	4,6-Dinitro-2-Methylphenol	100	<
30638-32-9	bis(2-Chloroisopropyl)Ether	20	<	86-30-6	N-Nitrosodiphenylamine (1)	20	<
601-64-7	N-Nitroso-Di-n-Propylamine	20	<	101-55-3	4-Bromophenyl-phenylether	20	<
67-72-1	Hexachloroethane	20	<	118-74-1	Hexachlorobenzene	20	<
98-95-3	Nitrobenzene	20	<	87-86-5	Pentachlorophenol	100	<
71-59-1	Isophorone	20	<	85-01-8	Phenanthrene	20	<
86-75-5	2-Nitrophenol	20	<	120-12-7	Anthracene	20	<
105-67-9	2,4-Dimethylphenol	20	<	84-74-2	Di-n-Butylphthalate	130	
101-91-1	bis(2-Chloroethoxy)Methane	20	<	206-44-0	Fluoranthene	20	<
100-83-2	2,4-Dichlorophenol	20	<	129-00-0	Pyrene	20	<
120-82-1	1,2,4-Trichlorobenzene	20	<	85-68-7	Butylbenzylphthalate	20	<
20-3	Naphthalene	20	<	56-55-3	Benzo(a)Anthracene	20	<
68-3	Hexachlorobutadiene	20	<	117-81-7	bis(2-Ethylhexyl)Phthalate	20	<
59-50-7	4-Chloro-3-Methylphenol	20	<	218-01-9	Chrysene	20	<
77-47-4	Hexachlorocyclopentadiene	20	<	117-84-0	Di-n-Octyl Phthalate	20	<
81-06-2	2,4,6-Trichlorophenol	20	<	205-99-2	Benzo(b)Fluoranthene	20	<
91-58-7	2-Chloronaphthalene	20	<	207-08-9	Benzo(k)Fluoranthene	20	<
131-11-3	Dimethyl Phthalate	20	<	50-32-8	Benzo(a)Pyrene	20	<
218-96-8	Acenaphthylene	20	<	193-39-5	Indeno(1,2,3-cd)Pyrene	20	<
606-20-2	2,6-Dinitrotoluene	20	<	53-70-3	Dibenz(a,h)Anthracene	20	<
83-32-9	Acenaphthene	20	<	191-24-2	Benzo(g,h,i)Perylene	20	<
51-28-5	2,4-Dinitrophenol	100	<				

(1) - Cannot be separated from diphenylamine

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: LAW92688BA #1 SCANS 1 TO 2000
05/01/87 14:44:00 CALI: LAW92688BA #3
SAMPLE: LAW ENG.--HT-2080-87H--MW-4--500ML TO 2ML--0.16UG/ML I.S.
CONDS.: 40/4-300@10/8--RTX5--20PSI--BN
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



1/87 14:44:19
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW92688BA ACQUIRING
01/01/87 14:44:00 + 0:03 Free sectors: 16766 Scan: 3 of 2000
Sample: LAW ENG.--HT-2080-B7H--MW-4--500ML TO 2ML--0.16UG/ML I.S.
Conds.: 40/4-300@10/B--RTX5--20PSI--BN
Formula: Instrument: A Weight: 1.000
Submitted by: Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 0 min Int. oven : 310 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05

Cent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2

Min Peak Width: 4 Min Frag Width %: 79 Min Area: 25
A/C Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type Q
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

1/87 15:23:38
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	528.0	2000.0	26.4	31497.	16. 16.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092953
Invoice Number 216935
May 13, 1987

Law Engineering
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall Pickett

Sample Description: Project Name -- Met/Austin
Project No. HT-2080-87H
Sample No. MW-5
Date Sampled: 04/27/87
Date Received: 04/28/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u> EPA storet number 01077	< 0.05	<u>mg/l</u>	04/30/87 12:02 pm	GS
<u>Arsenic total</u> EPA storet number 01002	< 0.05	<u>mg/l</u>	05/01/87 4:00 pm	GS
<u>Barium total</u> EPA storet number 01007	5.0	<u>mg/l</u>	04/30/87 11:04 am	GS
<u>Iron total</u> EPA storet number 01022	0.08	<u>mg/l</u>	04/29/87 10:25 am	APM
<u>Cadmium total</u> EPA storet number 01027	< 0.01	<u>mg/l</u>	04/30/87 12:17 pm	GS
<u>Chloride</u> EPA storet number 00940	96	<u>mg/l</u>	04/29/87 9:45 am	APM
<u>Chromium total</u> EPA storet number 01034	< 0.05	<u>mg/l</u>	04/30/87 12:46 pm	GS
<u>Copper total</u> EPA storet number 01042	< 0.05	<u>mg/l</u>	04/30/87 12:58 pm	GS
<u>Cyanide total</u> EPA storet number 00720	< 0.05	<u>mg/l</u>	05/01/87 4:00 pm	NDW
<u>Formaldehyde</u>	< 1	<u>mg/l</u>	05/08/87 4:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 092953, page 2
Environmental Engineering

<u>Mercury total</u> EPA storet number 71900	< 0.002	<u>mg/l</u>	05/04/87 10:38 am	GS
<u>Phosphorus</u> EPA storet number 00669	0.125	<u>mg/l</u>	04/30/87 4:00 pm	JA
<u>Manganese total</u> EPA storet number 01055	0.67	<u>mg/l</u>	04/30/87 1:04 pm	GS
<u>Nickel total</u> EPA storet number 01067	0.08	<u>mg/l</u>	04/30/87 1:37 pm	GS
<u>Orthophosphate</u>	0.025	<u>mg/l</u>	04/30/87 7:30 am	JA
<u>Lead total</u> EPA storet number 01051	< 0.10	<u>mg/l</u>	04/30/87 11:38 am	GS
<u>Phenolics total recoverable</u> EPA storet number 32730	< 0.05	<u>mg/l</u>	05/05/87 11:00 am	NDW
<u>Priority Pollutants</u>	enclosure		05/11/87 5:00 pm	WD
<u>Selenium total</u> EPA storet number 01147	< 0.01	<u>mg/l</u>	05/01/87 10:26 am	GS
<u>Sulfate total</u> EPA storet number 00945	260		04/30/87 4:45 pm	NDW
<u>Organic carbon total</u> EPA storet number 00680	21	<u>mg/l</u>	05/04/87 5:00 pm	APM
<u>Volatile organics</u>	enclosure		05/01/87 5:00 pm	WD
<u>Zinc total</u> EPA storet number 01092	0.11	<u>mg/l</u>	04/30/87 2:35 pm	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.
Daniel D. Pastalaniec

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 92953
 Client Sample ID: MW-5

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 05/01/87
 Date Analyzed: 05/01/87
 Dilution Factor: 1.0

METHOD 624

CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane . . .	5 <
74-83-9	Bromomethane	10 <	10061-02-6	Trans-1,3-Dichloropropene .	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
78-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane . . .	5 <
75-09-2	Methylene Chloride	5 <	79-00-5	1,1,2-Trichloroethane . .	5 <
78-35-4	1,1-Dichloroethene	5 <	71-43-2	Benzene	5 <
78-35-3	1,1-Dichloroethane	5 <	10061-01-5	cis-1,3-Dichloropropene .	5 <
156-60-5	Trans-1,2-Dichloroethene .	5 <	75-25-2	Bromoform	5 <
67-66-3	Chloroform	5 <	127-18-4	Tetrachloroethene	5 <
127-06-2	1,2-Dichloroethane	5 <	79-34-5	1,1,2,2-Tetrachloroethane	10 <
71-55-6	1,1,1-Trichloroethane . .	5 <	108-88-3	Toluene	5 <
56-23-5	Carbon Tetrachloride . . .	5 <	108-90-7	Chlorobenzene	5 <
78-27-4	Bromodichloromethane . . .	5 <	100-41-4	Ethylbenzene	5 <

The Lab ID for data on this page is LAW92953.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 92953
 Client Sample ID: MW-5

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 05/13/87
 Date Analyzed: 05/13/87
 Dilution Factor: 8.0

METHOD 625

S Number	UG/L	CAS Number	UG/L
2-75-9	N-Nitrosodimethylamine . . . 80 <	100-02-7	4-Nitrophenol 400 <
108-95-2	Phenol 80 <	121-14-2	2,4-Dinitrotoluene 80 <
1-44-4	bis(2-Chloroethyl)Ether . . . 80 <	606-20-2	2,6-Dinitrotoluene 80 <
5-57-8	2-Chlorophenol 80 <	84-66-2	Diethylphthalate 80 <
541-73-1	1,3-Dichlorobenzene 80 <	7005-72-3	4-Chlorophenyl-phenylether 80 <
106-46-7	1,4-Dichlorobenzene 80 <	86-73-7	Fluorene 80 <
5-50-1	1,2-Dichlorobenzene 80 <	534-52-1	4,6-Dinitro-2-Methylphenol 400 <
38638-32-9	bis(2-Chloroisopropyl)Ether 80 <	86-30-6	N-Nitrosodiphenylamine (1) 80 <
621-64-7	N-Nitroso-Di-n-Propylamine 80 <	101-55-3	4-Bromophenyl-phenylether 80 <
1-72-1	Hexachloroethane 80 <	118-74-1	Hexachlorobenzene 80 <
1-95-3	Nitrobenzene 80 <	87-86-5	Pentachlorophenol 400 <
78-59-1	Isophorone 80 <	85-01-8	Phenanthrene 80 <
1-75-5	2-Nitrophenol 80 <	120-12-7	Anthracene 80 <
1-5-67-9	2,4-Dimethylphenol 80 <	84-74-2	Di-n-Butylphthalate 42 =
111-91-1	bis(2-Chloroethoxy)Methane 80 <	206-44-0	Fluoranthene 80 <
120-83-2	2,4-Dichlorophenol 80 <	129-00-0	Pyrene 80 <
120-82-1	1,2,4-Trichlorobenzene . . . 80 <	85-68-7	Butylbenzylphthalate 80 <
1-20-3	Naphthalene 80 <	56-55-3	Benzo(a)Anthracene 80 <
87-68-3	Hexachlorobutadiene 80 <	117-81-7	bis(2-Ethylhexyl)Phthalate 80 <
1-50-7	4-Chloro-3-Methylphenol . . . 80 <	218-01-9	Chrysene 80 <
1-47-4	Hexachlorocyclopentadiene 80 <	117-84-0	Di-n-Octyl Phthalate 80 <
88-06-2	2,4,6-Trichlorophenol 80 <	205-99-2	Benzo(b)Fluoranthene 80 <
1-58-7	2-Chloronaphthalene 80 <	207-08-9	Benzo(k)Fluoranthene 80 <
1-11-3	Dimethyl Phthalate 80 <	50-32-8	Benzo(a)Pyrene 80 <
208-96-8	Acenaphthylene 80 <	193-39-5	Indeno(1,2,3-cd)Pyrene . . . 80 <
606-20-2	2,6-Dinitrotoluene 80 <	53-70-3	Dibenz(a,h)Anthracene 80 <
1-32-9	Acenaphthene 80 <	191-24-2	Benzo(g,h,i)Perylene 80 <
1-28-5	2,4-Dinitrophenol 400 <		

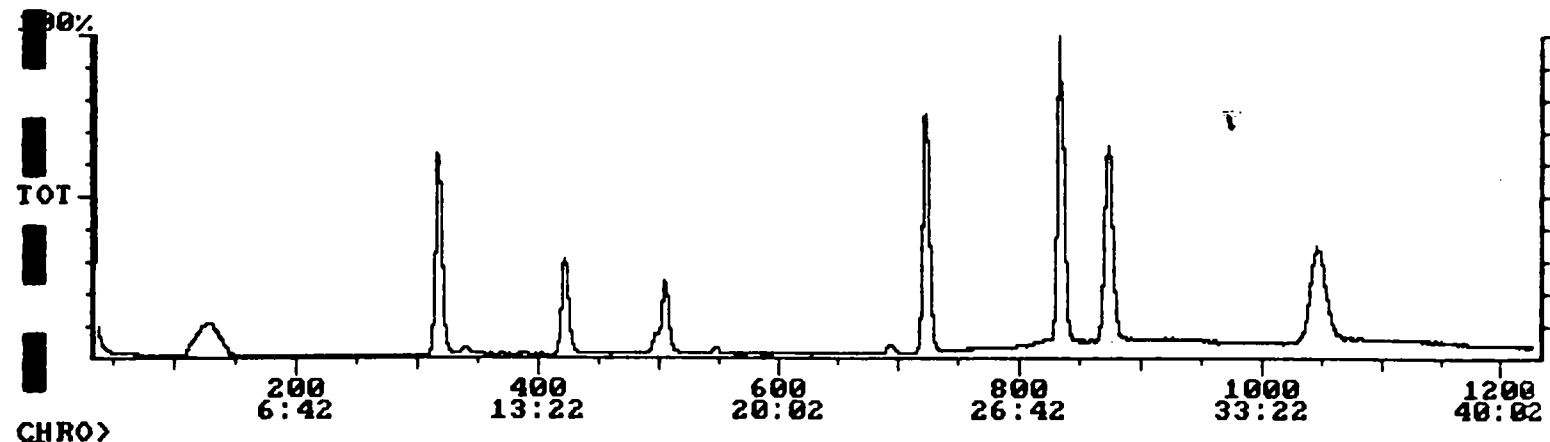
The Lab ID for data on this page is LAW92953D.

(1) - Cannot be separated from diphenylamine

~ - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Chromatogram C:\DATA\LAW92953 Acquired: May-01-1987 01:12:29
 Comment: LAW--MET--AUSTIN/2080---MW-5--4/27/87----- (X 1)
 Scan Range: 35 - 1230 Scan: 35 Int = 24837 e 1:12 RIC: 100% = 85321

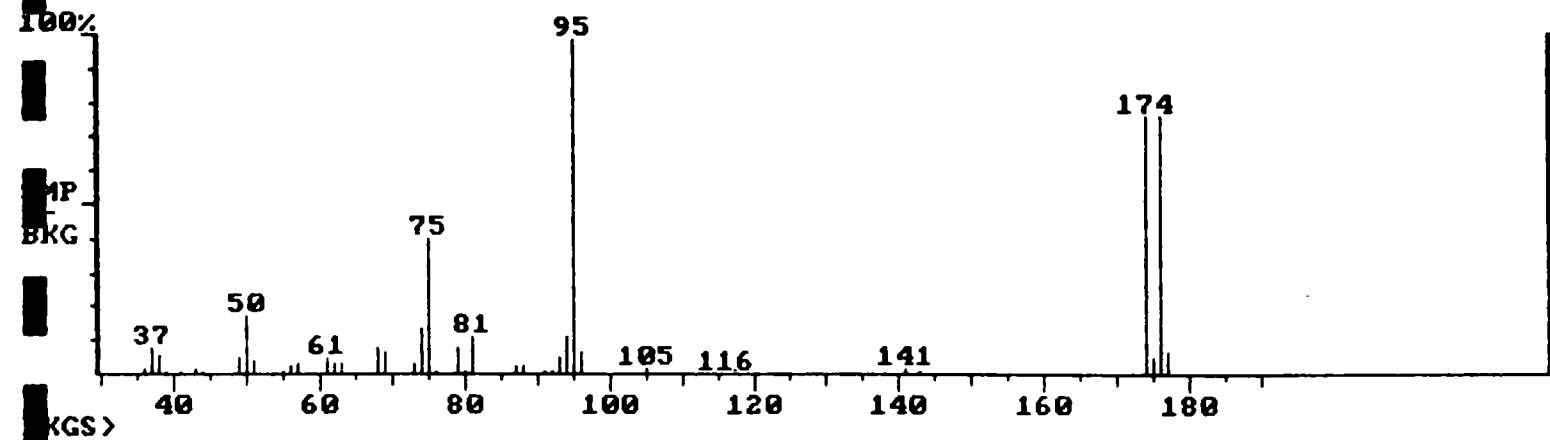


Log File: Filename: LAW92953 Acquired: May-01-1987 At: 01:12:29 (1:12 am)
 Comment: LAW--MET--AUSTIN/2080---MW-5--4/27/87----- (X 1)
 Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230

Acqu Parameters	ITD Calibration	Instrument
Acqu Mode: M.I.D	Slope: 6.316 dacs/amu	Filament #: 1
Scan Range: 35-260 amu	Std Dev: 0.042 dacs/amu	Multiplier: 1700 Volts
Scan Time: 2.000 secs	Defect: 0 mmu/100amu	Temp Set Pt: 220 C
Threshold: 1 counts		
A.G.C. Mode: ON		
Micro-Scans: 10		
Fil/Mul Delay: 0 secs		
Sched Time: 41 minutes		
User Abort: no		

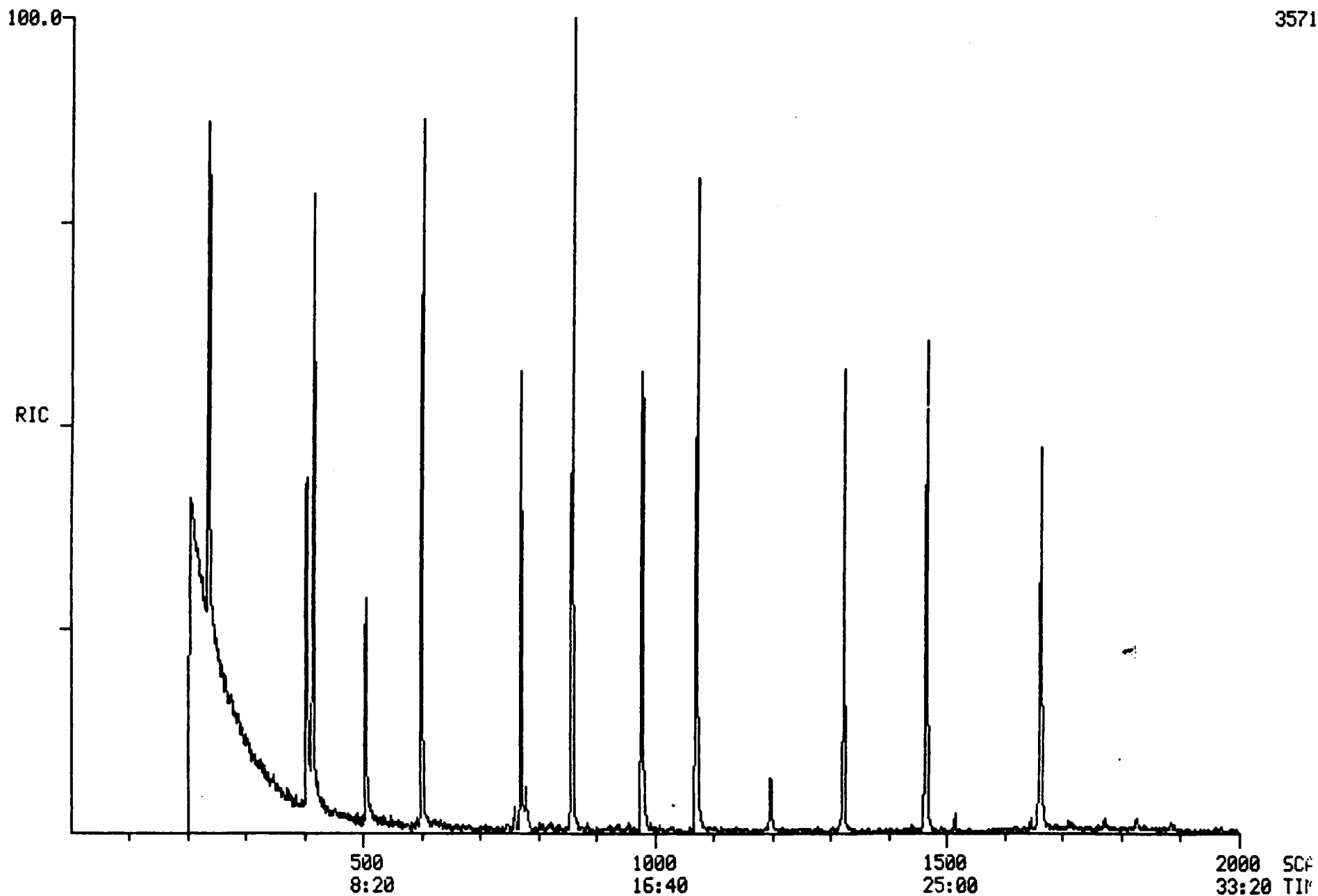
<no entries logged>

Background Subtract C:\DATA\LAW92953 Acquired: May-01-1987 01:12:29
 Comment: LAW--MET--AUSTIN/2080---MW-5--4/27/87----- (X 1)
 Average of: 1044 to 1046 Minus: 1006 to 1006 100% = 5647



RIC DATA: LAN92953D #1 SCANS 1 TO 2000
05/13/87 16:27:00 CALI: LAN92953D #3
SAMPLE: LAW ENG.--MET/AUSTIN/2000--MW-5--4/27/87--250ML TO 2ML MECL2
CONDS.: 40/4-300@10--RTX5-.32-.25--BN
RANGE: G 1.2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

3571



5/13/87 16:27:52
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: LAW92953D ACQUIRING
05/13/87 16:27:00 + 0:02 Free sectors: 3716 Scan: 2 of 2000
Sample: LAW ENG. --MET/AUSTIN/2080--MW-5--4/27/87--250ML TO 2ML MECL2
Conditions: 40/4-300@10--RTX5-.32-.25--BN
Formula: Instrument: A Weight: 0.000
Submitted by: LAW ENG. Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 280 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Int S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 80 Min Area: 25
ADC Threshold: 1 Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type 0
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

5/13/87 17:03:49
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	476.2	2000.0	23.8	22882.	11. 11.

Certificate Number 093693
 Invoice Number 218593
 June 03, 1987

Law Engineering Testing Company
 5500 Guhn Road
 Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
 MW-1A

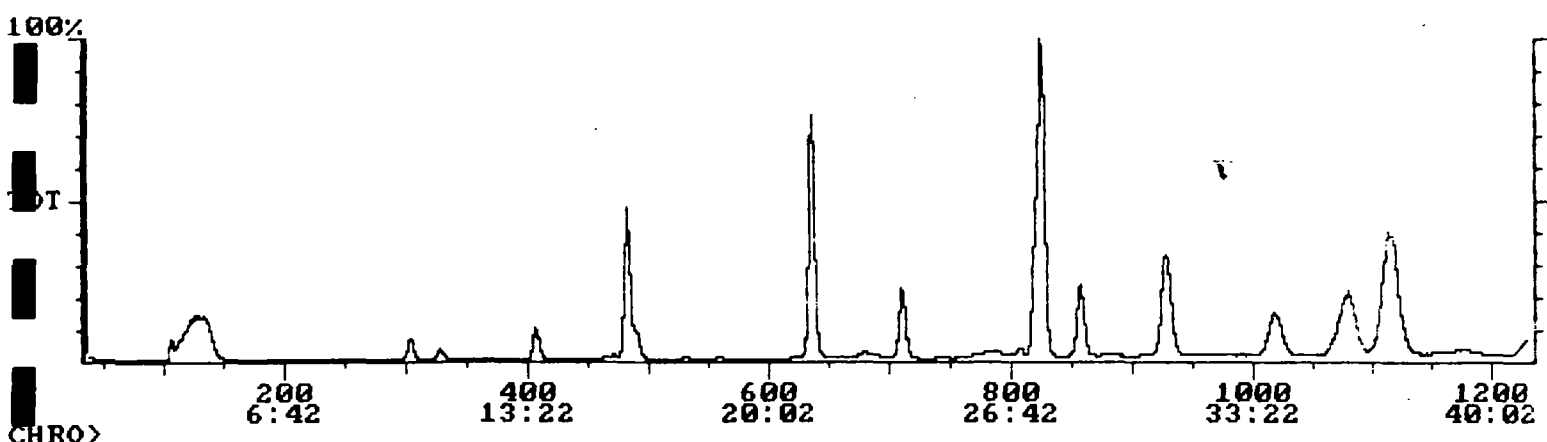
Date Sampled: 05/26/87
 Date Received: 05/27/87

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Benzene</u>	150	<u>ug/l</u>	05/29/87	5:00 pm	WD
<u>Ethyl Benzene</u>	80	<u>ug/l</u>	05/29/87	5:00 pm	WD
<u>Capillary GC</u>	enclosure		05/29/87	9:00 am	JL
<u>Sulfate total</u>	104	<u>mg/l</u>	05/29/87	12:30 pm	JA
EPA storet number 00945					
<u>Toluene</u>	120	<u>ug/l</u>	05/26/87	5:00 pm	WD
<u>Xylenes</u>	200	<u>ug/l</u>	05/29/87	5:00 pm	WD

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

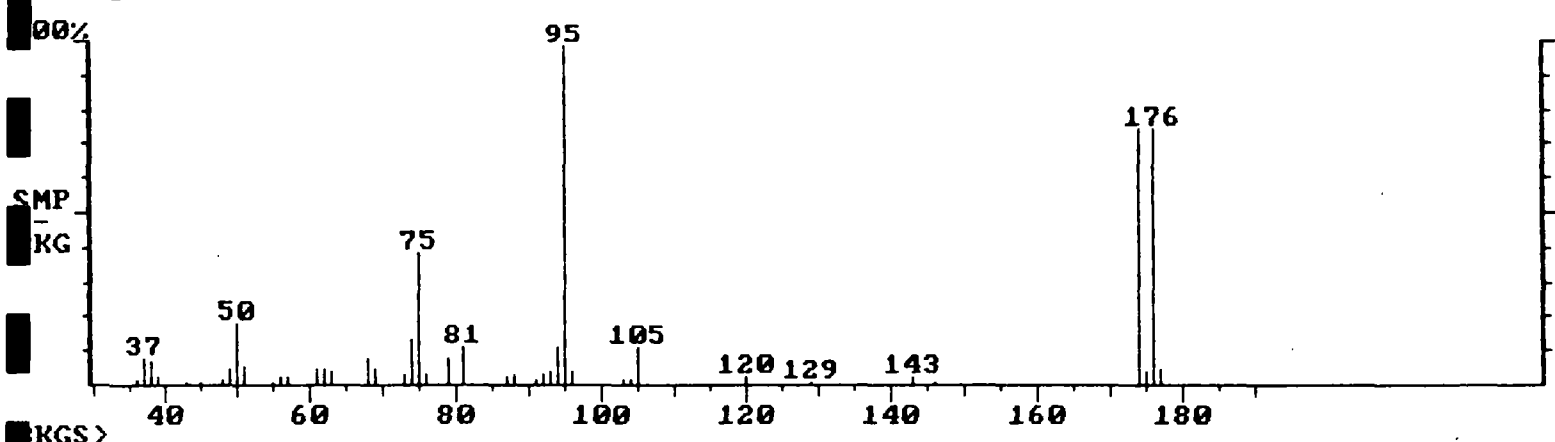
Daniel D. Pastalaniec
 Daniel D. Pastalaniec



CHRO>

Log File Filename: 93693D Acquired: May-29-1987 At: 18:37:28 (6:37 pm) Comment: LAW ENG.--MET/AUSTIN-2080--MW-1A---50 UG/L I.S. + SURR.---(X 1) Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230				
Acqu Parameters		ITD Calibration		Instrument
Acqu Mode: M.I.D Scan Range: 35-260 amu Scan Time: 2.000 secs Threshold: 1 counts A.G.C. Mode: ON Micro-Scans: 10 Fil/Mul Delay: 0 secs Sched Time: 41 minutes User Abort: no		Slope: 6.316 dacs/amu Std Dev: 0.042 dacs/amu Defect: 0 mmu/100amu		Filament #: 1 Multiplier: 1800 Volts Tmp Set Pt: 220 C
		MID Tune Sens: 9000		Temperatures Start End
		(1) 35-80 u Tune: 25		Open Split: 211 231 C
		(2) 81-130 u Tune: 41		Xfer Line: 222 209 C
		(3) 131-176 u Tune: 55		Exit Nozzle: 219 217 C
		(4) 177-260 u Tune: 71		Manifold: 193 197 C

Background Subtract D:\DATA\93693D Acquired: May-29-1987 18:37:28
 Comment: LAW ENG.--MET/AUSTIN-2080--MW-1A---50 UG/L I.S. + SURR.---(X 1)
 Average of: 1021 to 1021 Minus: 993 to 993 100% = 8085



KGS>

Certificate of Analysis No. 93693

Company: LAW ENGINEERING
 Sample point: MW-1A
 Sample date: 05 /25/ 87
 Remarks: SPL93693

06/01/87

Total Liquid (calculated)	
Specific gravity at 60 deg.F. (water=1)	0.7802
API gravity at 60 deg.F.	49.855
Pounds/gallon (in air)	6.498
Pounds/gallon (in vacuum)	6.505
Cu. ft. of vap/gal. @ 14.650 psia	13.493
Specific gravity as a vapor	6.336
Molecular weight	183.521

PIANO Analysis	Mol Percent	Weight Percent	Liq Vol Percent
Paraffines	2.847	3.440	3.479
Iso-Paraffines	3.100	2.015	2.207
Olefins	0.000	0.000	0.000
Naphthenes	0.246	0.207	0.193
Aromatics	22.930	17.720	15.698
Unidentified	70.877	76.618	78.423
	-----	-----	-----
	100.000	100.000	100.000

Analysis: 93693

Page: 2

Carbon Number Analysis :

Carbon Number	Mol Percent	Weight Percent	Liq Vol Percent
C1	0.000	0.000	0.000
C2	0.000	0.000	0.000
C3	0.000	0.000	0.000
C4	0.000	0.000	0.000
C5	0.000	0.000	0.000
C6	1.917	0.900	1.050
C7	0.000	0.000	0.000
C8	0.000	0.000	0.000
C9	0.000	0.000	0.000
C10	4.079	2.782	2.586
C11	5.231	3.830	3.392
C12	13.733	11.113	9.866
C13	48.831	48.930	50.378
C14	5.314	5.720	5.834
C15	7.767	8.990	9.122
C16	4.664	5.756	5.810
C17	2.489	3.261	3.271
C18	2.025	2.830	2.839
C19	2.780	4.087	4.039
C20	1.170	1.801	1.813
	-----	-----	-----
	100.000	100.000	100.000

Analysis: 93693

Page: 3

Extended analysis

Capillary Analysis	Mol Percent	Weight Percent	Liq Vol Percent
3-methylpentane	1.917	0.900	1.050
2-methylnonane	0.924	0.716	0.765
O-ethyltoluene	3.155	2.066	1.821
Isobutylbenzene	0.109	0.080	0.072
N-butylcyclohexane	0.119	0.091	0.088
1-methyl-2-isopropylbenzene	2.353	1.721	1.524
1-methyl-2-n-propylbenzene	1.809	1.323	1.172
1,3-dimethyl-2-ethylbenzene	0.643	0.470	0.410
1,2-dimethyl-3-ethylbenzene	0.198	0.145	0.126
2-methylbutylbenzene	0.322	0.260	0.233
1-tert-butyl-2-methylbenzene	2.702	2.179	1.911
Pentylbenzene	5.777	4.659	4.234
Trans-1-methyl-2(4-methylpentyl)cyclopentane	0.127	0.116	0.105
1-tert-butyl-3,5-dimethylbenzene	2.918	2.581	2.315
Naphthalene	1.887	1.318	1.068
1,3,5-triethylbenzene	0.625	0.553	0.500
1,2,4-triethylbenzene	0.107	0.095	0.084
Hexylbenzene	0.170	0.150	0.136
2-methylnaphthalene	0.075	0.058	0.044
Unidentified iso-tridecane	47.483	47.701	49.229
N-tridecane	0.371	0.373	0.385
1-methylnaphthalene	0.080	0.062	0.048
Unidentified iso-tetradecane	4.951	5.352	5.473
N-tetradecane	0.283	0.306	0.313
Unidentified iso-pentadecane	6.896	7.982	8.099
N-pentadecane	0.871	1.008	1.023
Unidentified iso-hexadecane	4.046	4.993	5.040
N-hexadecane	0.618	0.763	0.770
Unidentified iso-heptadecane	2.278	2.985	2.994
N-heptadecane	0.211	0.276	0.277
2,6,10,14-tetramethylpentadecane	0.279	0.408	0.406
Unidentified iso-octadecane	1.649	2.287	2.297
N-octadecane	0.097	0.135	0.136
2,6,10,14-tetramethylhexadecane	0.259	0.399	0.392
Unidentified iso-nonadecane	2.404	3.517	3.478
N-nonadecane	0.117	0.171	0.169
Unidentified iso-eicosane	1.170	1.801	1.813
	-----	-----	-----
	100.000	100.000	100.000

Southern Petroleum Laboratories, Inc.

Daniel D. Bostelmeier



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093694
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
MW-2A

Date Sampled: 05/26/87
Date Received: 05/27/87

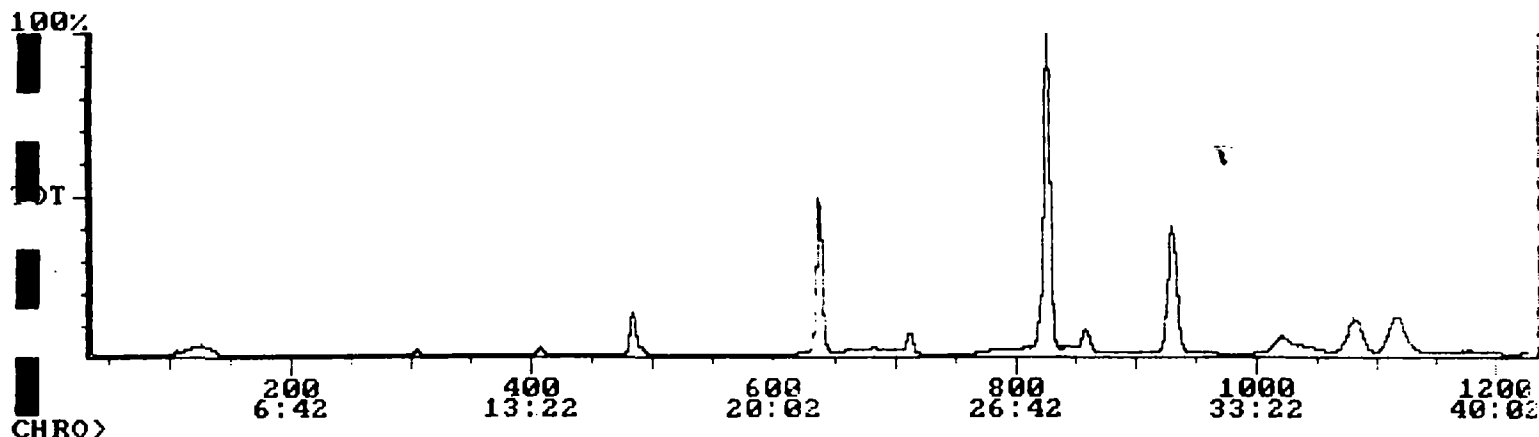
			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Benzene</u>	7800	<u>ug/l</u>	05/29/87	5:00 pm	WD
<u>Ethyl Benzene</u>	6200	<u>ug/l</u>	05/29/87	5:00 pm	WD
<u>Capillary GC</u>	enclosure		05/29/87	1:30 pm	JL
<u>Sulfate total</u>	24	<u>mg/l</u>	05/29/87	12:30 pm	JA
EPA storet number 00945					
<u>Toluene</u>	7700	<u>ug/l</u>	05/26/87	5:00 pm	WD
<u>Xylenes</u>	4700	<u>ug/l</u>	05/29/87	5:00 pm	WD

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec
Daniel D. Pastalaniec

Chromatogram D:\DATA\93694D Acquired: May-29-1987 20:35:28
 Comment: LAW ENG.--MET/AUSTIN-2080--MW-2A--1000 UG/L I.S. + SURR.---(X 20)
 Scan Range: 35 - 1230 Scan: 35 Int = 4575 @ 1:12 RIC: 100% = 1078971

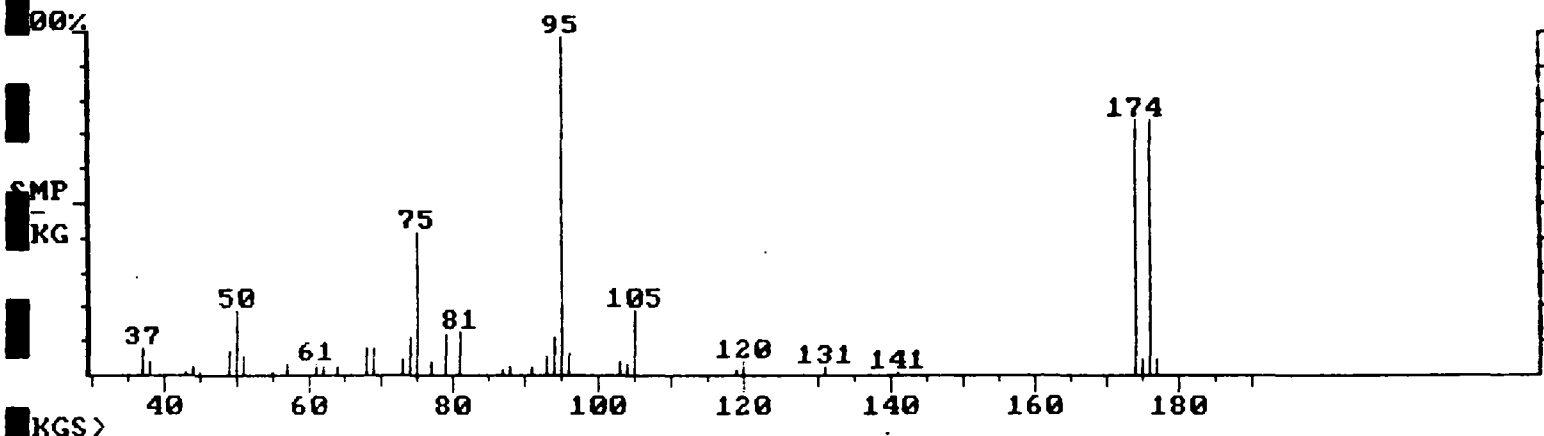


Log File Filename: 93694D Acquired: May-29-1987 At: 20:35:28 (8:35 pm)
 Comment: LAW ENG.--MET/AUSTIN-2080--MW-2A--1000 UG/L I.S. + SURR.---(X 20)
 Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230

Acqu Parameters	ITD Calibration	Instrument
Acqu Mode: M I D	Slope: 6.316 dacs/amu	Filament #: 1
Scan Range: 35-260 amu	Std Dev: 0.042 dacs/amu	Multiplier: 1800 Volts
Scan Time: 2.000 secs	Defect: 0 mmu/100amu	Temp Set Pt: 220 C
Threshold: 1 counts		
A.G.C. Mode: ON	MID Tune Sens: 9000	Temperatures Start End
Micro-Scans: 10	(1) 35-80 u Tune: 25	Open Split: 231 231 C
Fil/Mul Delay: 0 secs	(2) 81-130 u Tune: 41	Xfer Line: 221 222 C
Sched Time: 41 minutes	(3) 131-176 u Tune: 55	Exit Nozzle: 215 219 C
User Abort: no	(4) 177-260 u Tune: 71	Manifold: 186 190 C

<no entrys logged>

Background Subtract D:\DATA\93694D Acquired: May-29-1987 20:35:28
 Comment: LAW ENG.--MET/AUSTIN-2080--MW-2A--1000 UG/L I.S. + SURR.---(X 20)
 Average of: 1019 to 1019 Minus: 1047 to 1047 100% = 8583



Certificate of Analysis No. 93694

Company: LAW ENGINEERING
 Sample point: MW-2A
 Sample date: 05/25/87
 Remarks: SPL93694

06/01/87

Total Liquid (calculated)	
Specific gravity at 60 deg.F. (water=1)	0.8253
API gravity at 60 deg.F.	39.959
Pounds/gallon (in air)	6.873
Pounds/gallon (in vacuum)	6.880
Cu. ft. of vap/gal. @ 14.650 psia	15.548
Specific gravity as a vapor	5.816
Molecular weight	168.458

PIANO Analysis	Mol Percent	Weight Percent	Liq Vol Percent
Paraffines	6.121	8.331	8.905
Iso-Paraffines	1.375	1.500	1.624
Olefins	0.180	0.090	0.107
Naphthenes	2.074	1.807	1.806
Aromatics	47.525	36.176	31.420
Unidentified	42.725	52.096	56.138
	-----	-----	-----
	100.000	100.000	100.000

Analysis: 93694

Page: 2

Carbon Number Analysis :

Carbon Number	Mol Percent	Weight Percent	Liq Vol Percent
C1	0.000	0.000	0.000
C2	0.000	0.000	0.000
C3	0.000	0.000	0.000
C4	0.000	0.000	0.000
C5	0.000	0.000	0.000
C6	0.139	0.058	0.064
C7	0.877	0.495	0.581
C8	0.607	0.332	0.314
C9	4.395	2.831	2.747
C10	4.873	3.844	4.028
C11	10.844	9.699	10.424
C12	39.250	31.720	28.870
C13	10.033	9.425	8.805
C14	5.821	6.819	7.351
C15	6.204	7.824	8.396
C16	3.561	4.787	5.111
C17	1.613	2.303	2.443
C18	4.197	6.354	6.746
C19	1.383	2.255	2.351
C20	2.009	3.370	3.588
C21	0.535	0.941	0.981
C22	2.255	4.158	4.320
C23	0.693	1.335	1.383
C24	0.463	0.931	0.962
C25	0.248	0.519	0.535
	-----	-----	-----
	100.000	100.000	100.000

Analysis: 93694

Page: 3

Extended analysis

Capillary Analysis	Mol Percent	Weight Percent	Liq Vol Percent
Cyclopentane	0.139	0.058	0.064
2-methylpentene-2	0.180	0.090	0.107
2,2,3-trimethylbutane	0.062	0.037	0.044
Benzene	0.075	0.035	0.033
3-methylhexane	0.560	0.333	0.397
Toluene	0.607	0.332	0.314
Ethylbenzene	1.474	0.929	0.880
M-xylene	1.012	0.638	0.606
P-xylene	0.516	0.325	0.310
3-methyloctane	0.032	0.024	0.027
O-xylene	0.919	0.579	0.540
Unidentified iso-nonane	0.330	0.251	0.287
N-nonane	0.112	0.085	0.097
Isopropylbenzene	0.063	0.045	0.043
N-propylcyclohexane	0.064	0.048	0.050
N-butylcyclopentane	0.045	0.042	0.044
N-propylbenzene	0.078	0.062	0.059
M-ethyltoluene	0.646	0.461	0.438
P-ethyltoluene	0.408	0.291	0.277
2,3-dimethyloctane	0.026	0.022	0.024
1,3,5-trimethylbenzene	0.371	0.265	0.251
2-methylnonane	0.045	0.038	0.043
O-ethyltoluene	0.482	0.344	0.321
3-methylnonane	0.054	0.046	0.051
tert-Butylbenzene	0.174	0.139	0.132
Unidentified iso-decane	2.153	1.818	2.044
N-decane	0.264	0.223	0.251
1-methyl-3-isopropylbenzene	0.477	0.380	0.362
1-methyl-4-isopropylbenzene	0.257	0.205	0.196
N-butylcyclohexane	0.987	0.822	0.845
1-methyl-2-isopropylbenzene	0.049	0.039	0.037
1-methyl-3-n-propylbenzene	0.226	0.180	0.172
N-butylbenzene	0.078	0.062	0.059
1-methyl-4-n-propylbenzene	0.176	0.140	0.134
1-methyl-2-n-propylbenzene	0.055	0.044	0.041
1,4-dimethyl-2-ethylbenzene	0.129	0.103	0.096
1,3-Dimethyl-4-ethylbenzene	0.132	0.105	0.098
1,2-dimethyl-4-ethylbenzene	0.284	0.226	0.212
1,3-dimethyl-2-ethylbenzene	0.065	0.052	0.048
1,2-dimethyl-3-ethylbenzene	0.124	0.099	0.091

(continued on next page)

Analysis: 93694

Page: 4

Capillary Analysis (continued)	Mol Percent	Weight Percent	Liq Vol Percent
Unidentified iso-undecane	7.460	6.922	7.673
N-undecane	0.345	0.320	0.353
1,2,4,5-tetramethylbenzene	0.142	0.113	0.105
2-methylbutylbenzene	0.224	0.197	0.187
1-tert-butyl-2-methylbenzene	0.026	0.023	0.021
Pentylbenzene	0.092	0.081	0.073
Trans-1-methyl-2(4-methylpentyl)cyclopentane	0.839	0.837	0.803
1-tert-butyl-3,5-dimethylbenzene	0.030	0.029	0.023
Naphthalene	31.476	23.949	20.534
Unidentified iso-dodecane	6.013	6.079	6.662
N-dodecane	0.408	0.412	0.452
1,3,5-triethylbenzene	0.252	0.243	0.233
1,2,4-triethylbenzene	0.045	0.043	0.040
Hexylbenzene	0.409	0.394	0.379
2-methylnaphthalene	5.842	4.931	3.989
Unidentified iso-tridecane	3.087	3.378	3.683
N-tridecane	0.398	0.436	0.476
1-methylnaphthalene	0.110	0.093	0.076
Unidentified iso-tetradecane	5.368	6.322	6.838
N-tetradecane	0.343	0.404	0.437
Unidentified iso-pentadecane	5.723	7.217	7.745
N-pentadecane	0.481	0.607	0.651
Unidentified iso-hexadecane	3.356	4.511	4.816
N-hexadecane	0.205	0.276	0.295
Unidentified iso-heptadecane	1.432	2.044	2.168
N-heptadecane	0.181	0.259	0.275
2,6,10,14-tetramethylpentadecane	0.166	0.264	0.278
Unidentified iso-octadecane	1.522	2.300	2.443
N-octadecane	2.509	3.790	4.025
2,6,10,14-tetramethylhexadecane	0.596	1.000	1.038
Unidentified iso-nonadecane	0.650	1.036	1.084
N-nonadecane	0.137	0.219	0.229
Unidentified iso-eicosane	1.766	2.962	3.154
N-eicosane	0.243	0.408	0.434
Unidentified iso-heneicosane	0.504	0.887	0.925
N-heneicosane	0.031	0.054	0.056
Unidentified iso-docosane	2.193	4.043	4.201
N-docosane	0.062	0.115	0.119
Unidentified iso-tricosane	0.490	0.944	0.978
N-tricosane	0.203	0.391	0.405

(continued on next page)

Analysis: 93694

Page: 5

Capillary Analysis (continued)	Mol Percent	Weight Percent	Liq Vol Percent
Unidentified iso-tetracosane	0.448	0.900	0.930
N-tetracosane	0.015	0.031	0.032
Unidentified iso-pentacosane	0.230	0.482	0.497
N-pentacosane	0.018	0.037	0.038
	-----	-----	-----
	100.000	100.000	100.000

Southern Petroleum Laboratories, Inc.

Daniel D. Bostelnic



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093695
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H

MW-3A

Date Sampled: 05/26/87

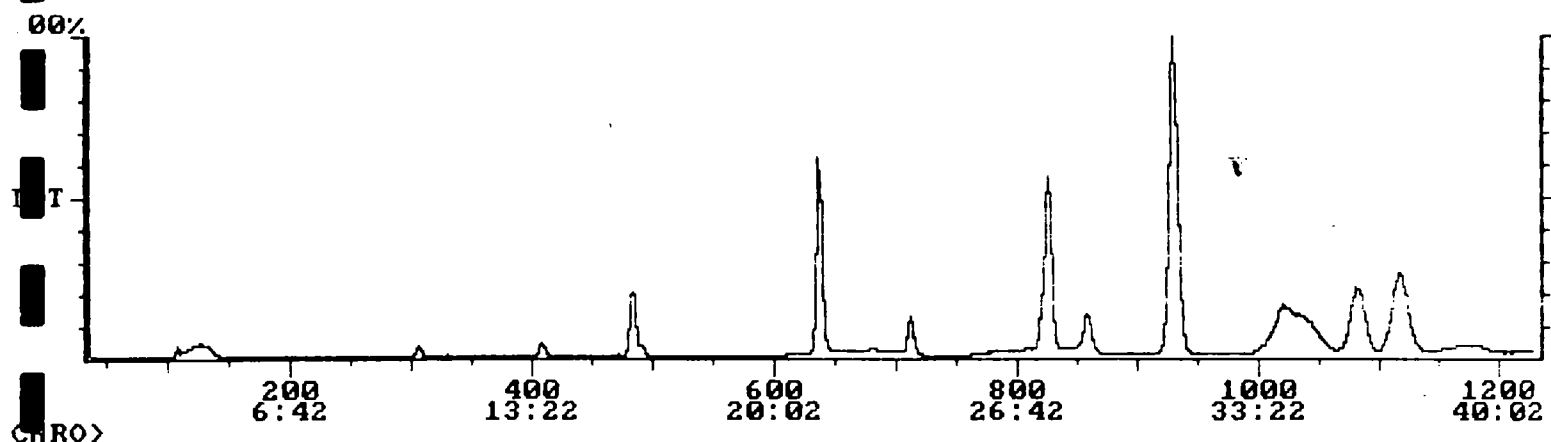
Date Received: 05/27/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Benzene</u>	500	<u>ug/l</u> 05/29/87	5:00 pm	WD .
<u>Ethyl Benzene</u>	9300	<u>ug/l</u> 05/29/87	5:00 pm	WD
<u>Capillary GC</u>	enclosure	05/29/87	5:00 pm	JL
<u>Sulfate total</u>	71	<u>mg/l</u> 05/29/87	12:30 pm	JA
EPA storet number 00945				
<u>Toluene</u>	2700	<u>ug/l</u> 05/26/87	5:00 pm	WD
<u>Xylenes</u>	6000	<u>ug/l</u> 05/29/87	5:00 pm	WD

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

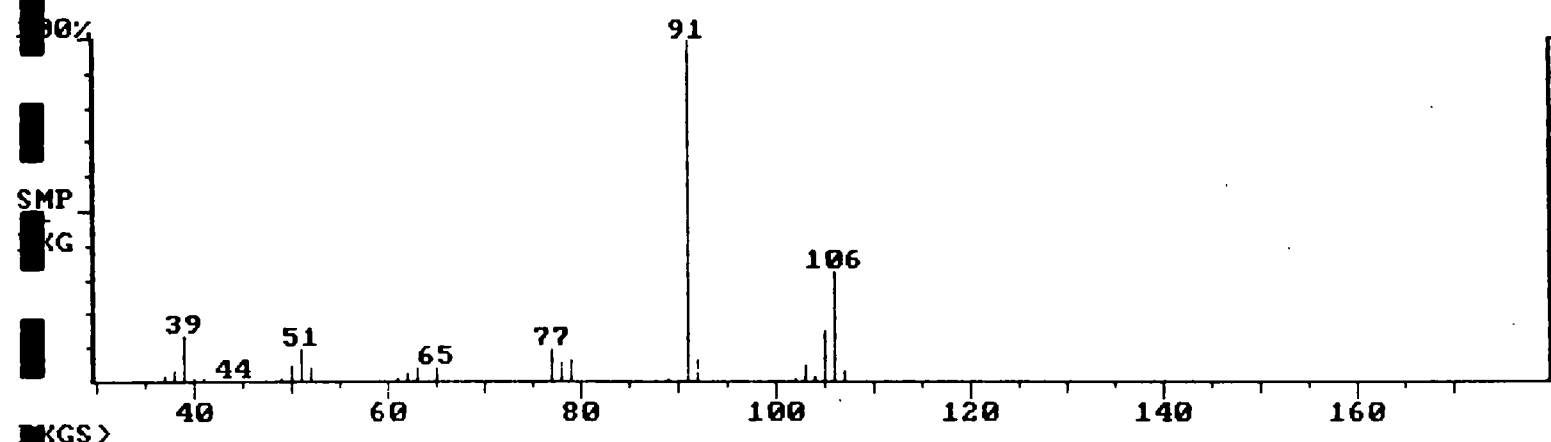
SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec



Log File Filename: 93695D Acquired: May-29-1987 At: 19:36:57 (7:36 pm) Comment: LAW ENG.--MET/AUSTIN-2080--MW-3A---1000 UG/L I.S.+SURR.---(X 20) Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230		
Acqu Parameters	IID Calibration	Instrument
Acqu Mode: M.I.D Scan Range: 35-260 amu Scan Time: 2.000 secs Threshold: 1 counts A.G.C. Mode: ON Micro-Scans: 10 Fil/Mul Delay: 0 secs Sched Time: 41 minutes User Abort: no	Slope: 6.316 dacs/amu Std Dev: 0.042 dacs/amu Defect: 0 mmu/100amu MID Tune Sens: 9000 (1) 35-80 u Tune: 25 (2) 81-130 u Tune: 41 (3) 131-176 u Tune: 55 (4) 177-260 u Tune: 71	Filament #: 1 Multiplier: 1800 Volts Tmp Set Pt: 220 C Temperatures Open Split: 230 231 C Xfer Line: 223 209 C Exit Nozzle: 217 218 C Manifold: 186 198 C
<no entrys logged>		

Background Subtract D:\DATA\93695D Acquired: May-29-1987 19:36:57
Comment: LAW ENG.--MET/AUSTIN-2080--MW-3A---1000 UG/L I.S.+SURR.---(X 20)
Average of: 1082 to 1082 Minus: 1058 to 1058 100% = 51970



Certificate of Analysis No. 93695

Company: LAW ENGINEERING
 Sample point: MW-3A
 Sample date: 05/25/87
 Remarks: SPL93695

06/01/87

Total Liquid (calculated)
 Specific gravity at 60 deg.F. (water=1) 0.8633
 API gravity at 60 deg.F. 32.414
 Pounds/gallon (in air) 7.189
 Pounds/gallon (in vacuum) 7.197
 Cu. ft. of vap/gal. @ 14.650 psia 20.393
 Specific gravity as a vapor 4.638
 Molecular weight 134.348

PIANO Analysis	Mol Percent	Weight Percent	Liq Vol Percent
Paraffines	1.612	2.545	2.861
Iso-Paraffines	4.918	4.140	5.051
Olefins	0.094	0.059	0.075
Naphthenes	4.861	5.084	5.460
Aromatics	72.405	66.607	61.892
Unidentified	16.110	21.565	24.661
	-----	-----	-----
	100.000	100.000	100.000

Carbon Number Analysis :

Carbon Number	Mol Percent	Weight Percent	Liq Vol Percent
C1	0.000	0.000	0.000
C2	0.000	0.000	0.000
C3	0.000	0.000	0.000
C4	0.000	0.000	0.000
C5	0.000	0.000	0.000
C6	0.347	0.222	0.291
C7	3.425	2.549	3.182
C8	4.058	2.783	2.756
C9	20.645	17.121	17.897
C10	5.544	5.579	6.068
C11	12.529	12.835	13.195
C12	39.406	38.734	35.823
C13	4.556	5.125	4.724
C14	3.260	3.747	3.503
C15	2.255	3.565	4.002
C16	0.930	1.567	1.750
C17	0.645	1.155	1.281
C18	0.281	0.538	0.597
C19	0.783	1.576	1.723
C20	0.884	1.860	2.072
C21	0.099	0.217	0.237
C22	0.279	0.646	0.702
C23	0.065	0.158	0.172
C24	0.009	0.023	0.025
	-----	-----	-----
	100.000	100.000	100.000

Extended analysis

Capillary Analysis	Mol Percent	Weight Percent	Liq Vol Percent
3-methylpentene-1	0.045	0.028	0.036
2-methylpentane	0.302	0.194	0.255
1-hexene-2	0.049	0.031	0.039
3-methylhexane	3.376	2.518	3.143
Toluene	4.058	2.783	2.756
Ethylbenzene	9.109	7.198	7.128
P-xylene	3.750	2.963	2.955
Cis,trans,trans,1,2,4-trimethylcyclohexane	0.127	0.119	0.130
O-xylene	2.864	2.263	2.208
Unidentified iso-nonane	4.749	4.534	5.423
N-nonane	0.046	0.044	0.053
Isopropylbenzene	0.341	0.305	0.304
N-butylcyclopentane	0.051	0.059	0.065
3,3-dimethyloctane	0.116	0.123	0.143
M-ethyltoluene	0.897	0.802	0.797
2,3-dimethyloctane	0.398	0.421	0.490
2-methylnonane	0.429	0.454	0.536
3-methylnonane	0.186	0.197	0.231
tert-Butylbenzene	1.522	1.520	1.506
Unidentified iso-decane	1.502	1.590	1.869
N-decane	0.102	0.108	0.127
1-methyl-3-isopropylbenzene	0.655	0.654	0.652
1-methyl-4-isopropylbenzene	0.312	0.312	0.313
N-butylcyclohexane	4.604	4.807	5.166
1-methyl-2-isopropylbenzene	5.335	5.330	5.223
1-methyl-3-n-propylbenzene	0.092	0.092	0.092
N-butylbenzene	0.079	0.079	0.079
1-methyl-4-n-propylbenzene	0.091	0.091	0.091
1-methyl-2-n-propylbenzene	0.020	0.020	0.020
1,4-dimethyl-2-ethylbenzene	0.072	0.072	0.071
1,3-Dimethyl-4-ethylbenzene	0.110	0.110	0.108
1,2-dimethyl-4-ethylbenzene	0.236	0.236	0.232
1,3-dimethyl-2-ethylbenzene	0.196	0.196	0.189
1,2-dimethyl-3-ethylbenzene	0.058	0.058	0.056
Unidentified iso-undecane	0.519	0.604	0.701
N-undecane	0.150	0.174	0.202
1,2,4,5-tetramethylbenzene	0.083	0.083	0.080
2-methylbutylbenzene	0.143	0.158	0.157
1-tert-butyl-2-methylbenzene	0.227	0.250	0.243
Pentylbenzene	0.739	0.814	0.819

(continued on next page)

Capillary Analysis (continued)	Mol Percent	Weight Percent	Liq Vol Percent
Trans-1-methyl-2(4-methylpentyl)cyclopentane	0.079	0.099	0.099
1-tert-butyl-3,5-dimethylbenzene	0.023	0.028	0.028
Naphthalene	35.117	33.506	30.046
Unidentified iso-dodecane	2.825	3.581	4.105
N-dodecane	0.170	0.215	0.246
1,3,5-triethylbenzene	0.046	0.055	0.055
1,2,4-triethylbenzene	0.095	0.115	0.113
Hexylbenzene	0.134	0.162	0.163
2-methylnaphthalene	3.451	3.653	3.091
Unidentified iso-tridecane	0.619	0.850	0.971
N-tridecane	0.211	0.290	0.331
1-methylnaphthalene	2.550	2.699	2.317
Unidentified iso-tetradecane	0.541	0.799	0.904
N-tetradecane	0.169	0.249	0.282
Unidentified iso-pentadecane	2.116	3.345	3.755
N-pentadecane	0.139	0.220	0.247
Unidentified iso-hexadecane	0.815	1.373	1.533
N-hexadecane	0.115	0.194	0.217
Unidentified iso-heptadecane	0.521	0.933	1.035
N-heptadecane	0.124	0.222	0.246
2,6,10,14-tetramethylpentadecane	0.053	0.106	0.117
Unidentified iso-octadecane	0.176	0.334	0.371
N-octadecane	0.052	0.098	0.109
2,6,10,14-tetramethylhexadecane	0.111	0.233	0.253
Unidentified iso-nonadecane	0.626	1.252	1.370
N-nonadecane	0.046	0.091	0.100
Unidentified iso-eicosane	0.825	1.735	1.933
N-eicosane	0.059	0.125	0.139
Unidentified iso-heneicosane	0.086	0.189	0.206
N-heneicosane	0.013	0.028	0.031
Unidentified iso-docosane	0.144	0.333	0.362
N-docosane	0.135	0.313	0.340
Unidentified iso-tricosane	0.037	0.090	0.098
N-tricosane	0.028	0.068	0.074
Unidentified iso-tetracosane	0.009	0.023	0.025
	-----	-----	-----
	100.000	100.000	100.000

Southern Petroleum Laboratories, Inc.

Daniel D. Boulton



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093696
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
MW-4A

Date Sampled: 05/26/87

Date Received: 05/27/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Sulfate total</u>	108	<u>mg/l</u> 05/29/87	12:30 pm	JA
EPA storet number 00945				

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093697
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
TS-I2
Influent before Filtering
Date Sampled: 05/26/87
Date Received: 05/27/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u>	< 0.05	<u>mg/l</u> 05/28/87	1:10 pm	GS
EPA storet number 01077				
<u>Arsenic total</u>	< 0.05	<u>mg/l</u> 05/28/87	2:43 pm	GS
EPA storet number 01002				
<u>Barium total</u>	2.5	<u>mg/l</u> 06/02/87	1:52 pm	GS
EPA storet number 01007				
<u>Boron total</u>	0.56	<u>mg/l</u> 06/02/87	11:00 am	APM
EPA storet number 01022				
<u>Cadmium total</u>	< 0.02	<u>mg/l</u> 05/28/87	1:42 pm	GS
EPA storet number 01027				
<u>Chloride</u>	91	<u>mg/l</u> 06/01/87	10:00 am	JA
EPA storet number 00940				
<u>Chromium total</u>	< 0.05	<u>mg/l</u> 05/28/87	11:48 am	GS
EPA storet number 01034				
<u>Copper total</u>	< 0.05	<u>mg/l</u> 05/29/87	11:26 am	GS
EPA storet number 01042				
<u>Cyanide total</u>	< 0.05	<u>mg/l</u> 06/03/87	10:00 am	APM
EPA storet number 00720				
<u>Formaldehyde</u>	< 1	<u>mg/l</u> 06/02/87	5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093697, page 2
Law Engineering Testing Company

<u>Mercury total</u> EPA storet number 71900	< 0.005	<u>mg/l</u>	05/20/87	8:00 am	GS
<u>Phosphorus</u> EPA storet number 00669	1.45	<u>mg/l</u>	05/28/87	2:00 pm	JA
<u>Manganese total</u> EPA storet number 01055	0.55	<u>mg/l</u>	06/01/87	3:30 pm	GS
<u>Nickel total</u> EPA storet number 01067	< 0.05	<u>mg/l</u>	05/29/87	3:17 pm	GS
<u>Orthophosphate</u>	1.25	<u>mg/l</u>	05/28/87	1:30 pm	JA
<u>Lead total</u> EPA storet number 01051	< 0.1	<u>mg/l</u>	05/29/87	11:00 am	GS
<u>Phenolics total recoverable</u> EPA storet number 32730	< 0.05	<u>mg/l</u>	06/01/87	1:00 pm	NDW
<u>Priority Pollutants</u>	enclosure				
<u>Selenium total</u> EPA storet number 01147	< 0.05	<u>mg/l</u>	05/28/87	4:19 pm	GS
<u>Sulfate total</u> EPA storet number 00945	92	<u>mg/l</u>	05/29/87	12:30 pm	JA
<u>Organic carbon total</u> EPA storet number 00680	95	<u>mg/l</u>	06/02/87	2:45 pm	JA
<u>Volatile organics</u>	enclosure		05/28/87		
<u>Zinc total</u> EPA storet number 01092	0.17	<u>mg/l</u>	05/29/87	3:50 pm	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec



SOUTHERN PETROLEUM LABORATORIES, INC.

Sample ID: Law--2080--TS-I2

SPL Lab ID: 93697

Date Injected 5-28-87

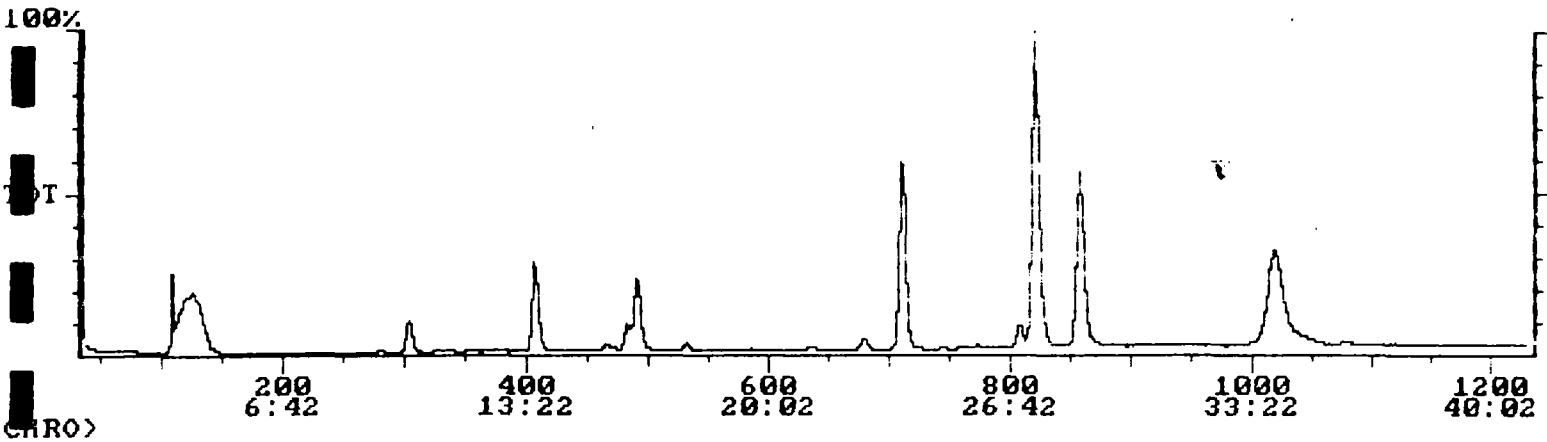
ND = Not detected or below 5 ug/l

VOLATILES

SCAN	COMPOUND	ug/l
406	Bromochloromethane(Int. Std.)	50
710	1,4-Difluorobenzene(Int.Std.)	50
857	Chlorobenzene-d5(Int.Std.)	50
ND	Acrolein	
ND	Acrylonitrile	
ND	2-Chloroethylvinyl ether	
ND	Bis(chloromethyl)ether	
ND	Chloromethane	
ND	Bromomethane	
ND	Dichlorodifluoromethane	
ND	Vinyl chloride	
ND	Chloroethane	
ND	Methylene chloride	
ND	Trichlorofluoromethane	
ND	1,1-Dichloroethene	
ND	1,1-Dichloroethane	
ND	trans-1,2-Dichloroethene	
ND	Chloroform	
ND	1,2-Dichloroethane	
ND	1,1,1-Trichloroethane	
ND	Carbon tetrachloride	
ND	Bromodichloromethane	
ND	1,2-Dichloropropane	
ND	trans-1,3-Dichloropropene	
ND	Trichloroethene	
ND	cis-1,3-Dichloropropene	
ND	Benzene	
ND	1,1,2-Trichloroethane	
ND	Dibromochloromethane	
ND	Bromoform	
ND	1,1,2,2-Tetrachloroethane	
ND	Tetrachloroethene	
ND	Toluene	
ND	Chlorobenzene	
ND	Ethylbenzene	
ND	Xylenes	
490	1,2-Dichloroethane-d4(Surr.)	110% Rec
820	Toluene d-8(Surr.)	114% Rec
1017	Bromofluorobenzene(Surr.)	110% Rec

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Boulton

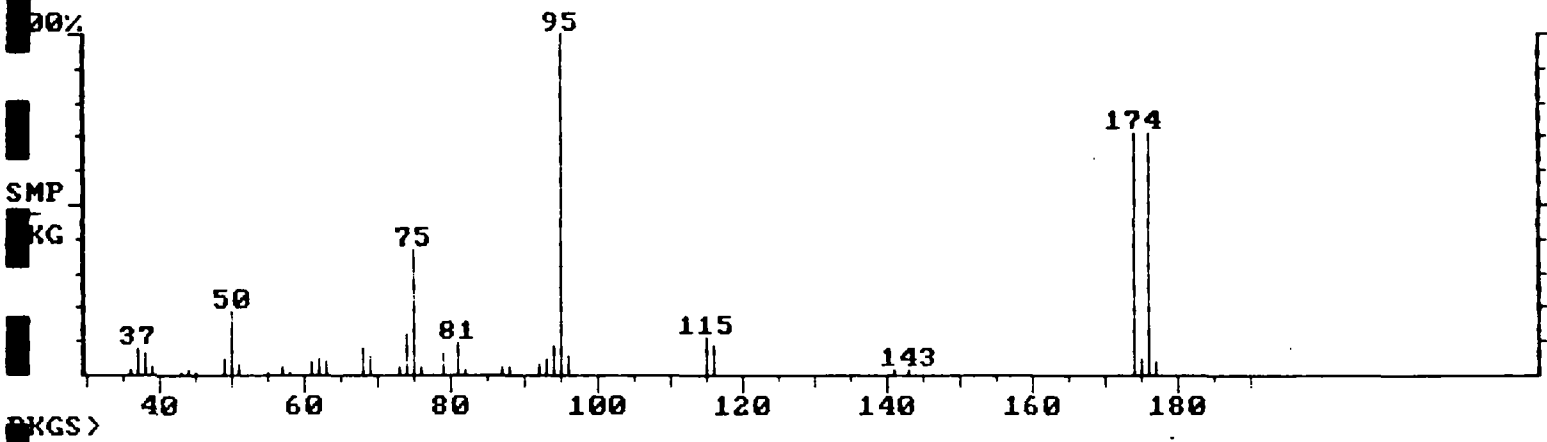


Log File Filename: LAH93697 Acquired: May-28-1987 At: 12:58:20 (12:58 am)
Comment: LAH ENG.--MET/AUSTIN-2080--TS-12---5/25/87--50UG/L I.S.---(X 1)
Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230

Acqu. Parameters		ITD Calibration	Instrument	
Acqu Mode: M.I.D		Slope: 6.316 dacs/amu	Filament #: 1	
Scan Range: 35-260 amu		Std Dev: 0.042 dacs/amu	Multiplier: 1800 Volts	
Scan Time: 2.000 secs		Defect: 0 mmu/100amu	Temp Set Pt: 220 C	
Threshold: 1 counts				
A.G.C. Mode: ON		MID Tune Sens: 9000		Temperatures
Micro-Scans: 10		(1) 35-80 u Tune: 25	Open Split:	Start End
Fil/Mul Delay: 0 secs		(2) 81-130 u Tune: 41	Xfer Line:	209 229 C
Sched Time: 41 minutes		(3) 131-176 u Tune: 55	Exit Nozzle:	218 222 C
User Abort: no		(4) 177-260 u Tune: 71	Manifold:	218 217 C
				194 185 C

<no entrys logged>

Background Subtract D:\DATA\LAH93697 Acquired: May-28-1987 12:58:20
Comment: LAH ENG.--MET/AUSTIN-2080--TS-12---5/25/87--50UG/L I.S.---(X 1)
Average of: 1018 to 1018 Minus: 962 to 962 100% = 5075



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 93697
 Client Sample ID: TS-I2

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 05/29/87
 Date Analyzed: 05/29/87
 Dilution Factor: 2.0

METHOD 625

CAS Number		UG/L	CAS Number		UG/L
62-75-9	N-Nitrosodimethylamine . . .	20 <	100-02-7	4-Nitrophenol	100 <
08-95-2	Phenol	20 <	121-14-2	2,4-Dinitrotoluene	20 <
11-44-4	bis(2-Chloroethyl)Ether . . .	20 <	606-20-2	2,6-Dinitrotoluene	20 <
95-57-8	2-Chlorophenol	20 <	84-66-2	Diethylphthalate	20 <
541-73-1	1,3-Dichlorobenzene	20 <	7005-72-3	4-Chlorophenyl-phenylether	20 <
06-46-7	1,4-Dichlorobenzene	20 <	86-73-7	Fluorene	20 <
95-50-1	1,2-Dichlorobenzene	20 <	534-52-1	4,6-Dinitro-2-Methylphenol	100 <
39638-32-9	bis(2-Chloroisopropyl)Ether	20 <	86-30-6	N-Nitrosodiphenylamine (1)	20 <
21-64-7	N-Nitroso-Di-n-Propylamine	20 <	101-55-3	4-Bromophenyl-phenylether	20 <
7-72-1	Hexachloroethane	20 <	118-74-1	Hexachlorobenzene	20 <
98-95-3	Nitrobenzene	20 <	87-86-5	Pentachlorophenol	100 <
78-59-1	Isophorone	20 <	85-01-8	Phenanthrene	20 <
8-75-5	2-Nitrophenol	20 <	120-12-7	Anthracene	20 <
105-67-9	2,4-Dimethylphenol	20 <	84-74-2	Di-n-Butylphthalate	20 <
111-91-1	bis(2-Chloroethoxy)Methane	20 <	206-44-0	Fluoranthene	20 <
20-83-2	2,4-Dichlorophenol	20 <	129-00-0	Pyrene	20 <
120-82-1	1,2,4-Trichlorobenzene . . .	20 <	85-68-7	Butylbenzylphthalate	20 <
91-20-3	Naphthalene	20 <	56-55-3	Benzo(a)Anthracene	20 <
7-68-3	Hexachlorobutadiene	20 <	117-81-7	bis(2-Ethylhexyl)Phthalate	20 <
9-50-7	4-Chloro-3-Methylphenol . . .	20 <	218-01-9	Chrysene	20 <
77-47-4	Hexachlorocyclopentadiene	20 <	117-84-0	Di-n-Octyl Phthalate	20 <
98-06-2	2,4,6-Trichlorophenol	20 <	205-99-2	Benzo(b)Fluoranthene	20 <
1-58-7	2-Chloronaphthalene	20 <	207-08-9	Benzo(k)Fluoranthene	20 <
131-11-3	Dimethyl Phthalate	20 <	50-32-8	Benzo(a)Pyrene	20 <
208-96-8	Acenaphthylene	20 <	193-39-5	Indeno(1,2,3-cd)Pyrene	20 <
06-20-2	2,6-Dinitrotoluene	20 <	53-70-3	Dibenz(a,h)Anthracene	20 <
33-32-9	Acenaphthene	20 <	191-24-2	Benzo(g,h,i)Perylene	20 <
51-28-5	2,4-Dinitrophenol	100 <			

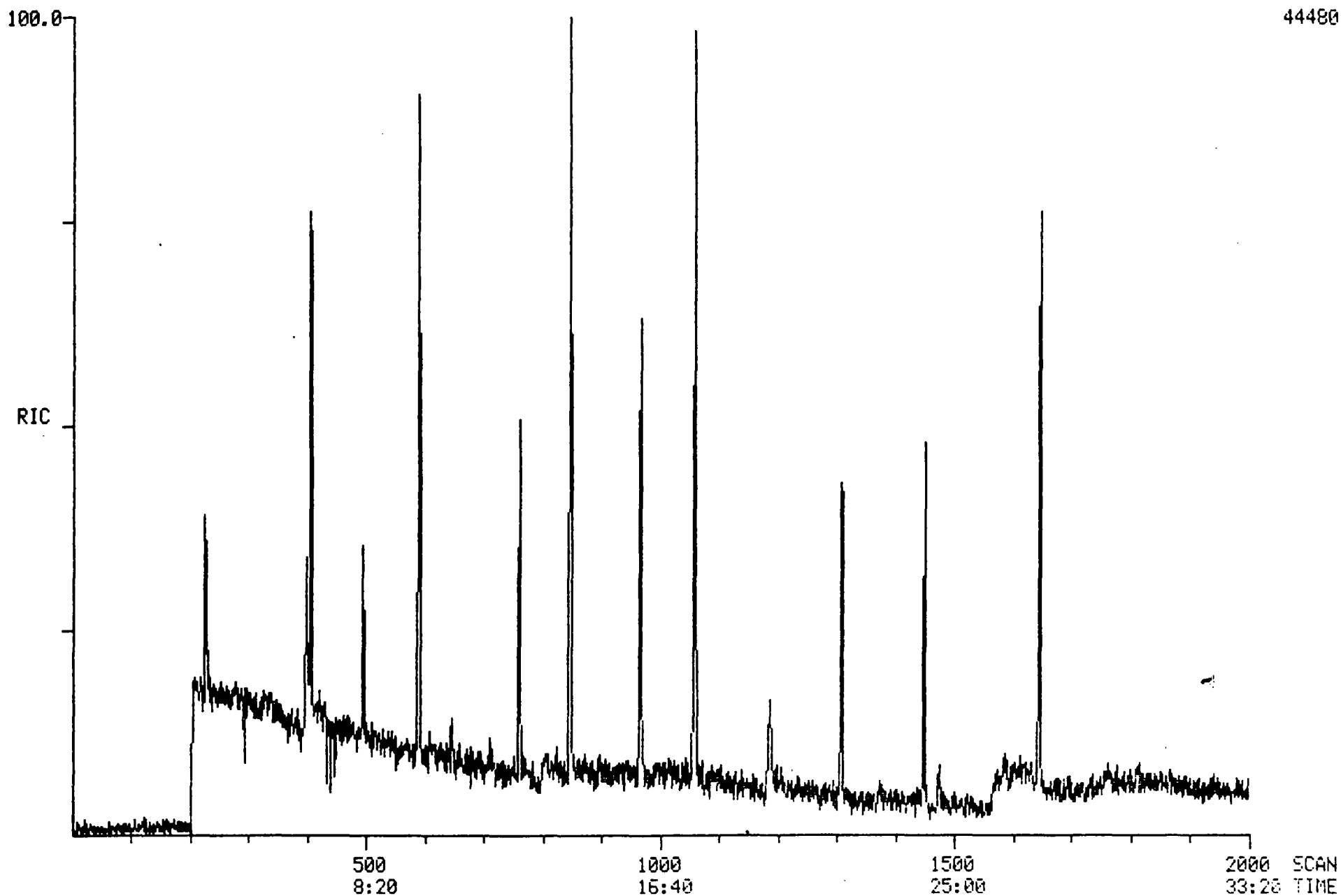
The Lab ID for data on this page is B93697.

(1) - Cannot be separated from diphenylamine

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC DATA: 893697 #1 SCANS 1 TO 2000
05/29/87 17:23:00 CALI: 893697 #3
SAMPLE: LAW ENG.-HT-2080-87H-5/27/87(DR)-5/29/87(DE)-500ML-1ML
CONDS.: 40/4-300@10--RTX5-.32-.25--20PSI---BN
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

44480.



5/29/87 17:23:33
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: B93697 ACQUIRING
5/29/87 17:23:00 + 0:02 Free sectors: 2945 Scan: 2 of 2000
Sample: LAW ENG. -HT-2080-87H-5/27/87(DR)-5/29/87(DE)-500ML-1ML
Conditions: 40/4-300@10--RTX5-.32-.25--20PSI----BN
Formula: Instrument: A Weight: 0.000
Submitted by: LAW ENG. Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 280 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 39.5
2 40 - 300 10.0 26.0 30.5 Divert 39.5 6.0
3 300 - 300 - 8.0 38.5
4 300 - 300 - 1.0 39.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Sent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 80 Min Area: 25
ADC Threshold: 1 Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type G
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

5/29/87 17:56:58

ACQUISITION COMPLETED

SCAN 293 TRUNCATED: DATA RATE TOO HIGH
SCAN 434 TRUNCATED: DATA RATE TOO HIGH
SCAN 441 TRUNCATED: DATA RATE TOO HIGH
SCAN 448 TRUNCATED: DATA RATE TOO HIGH
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	643.1	2000.0	32.2	195682.	98. 98.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093698
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
TS-E

Effluent

Date Sampled: 05/26/87

Date Received: 05/27/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u>	< 0.05	<u>mg/l</u> 05/28/87	1:10 pm	GS
EPA storet number 01077				
<u>Arsenic total</u>	< 0.05	<u>mg/l</u> 05/28/87	2:43 pm	GS
EPA storet number 01002				
<u>Barium total</u>	2.5	<u>mg/l</u> 06/02/87	1:52 pm	GS
EPA storet number 01007				
<u>Boron total</u>	0.67	<u>mg/l</u> 06/02/87	11:00 am	APM
EPA storet number 01022				
<u>Cadmium total</u>	< 0.02	<u>mg/l</u> 05/28/87	1:42 pm	GS
EPA storet number 01027				
<u>Chloride</u>	106	<u>mg/l</u> 06/01/87	10:00 am	JA
EPA storet number 00940				
<u>Chromium total</u>	< 0.05	<u>mg/l</u> 05/28/87	11:48 am	GS
EPA storet number 01034				
<u>Copper total</u>	< 0.05	<u>mg/l</u> 05/29/87	11:26 am	GS
EPA storet number 01042				
<u>Cyanide total</u>	< 0.05	<u>mg/l</u> 06/03/87	10:00 am	APM
EPA storet number 00720				
<u>Formaldehyde</u>	< 1	<u>mg/l</u> 06/02/87	5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093698, page 2
Law Engineering Testing Company

Mercury total < 0.005 mg/l 05/20/87 8:00 am GS
EPA storet number 71900

Phosphorus 1.35 mg/l 05/28/87 2:00 pm JA
EPA storet number 00669

Manganese total 0.55 mg/l 06/01/87 3:30 pm GS
EPA storet number 01055

Nickel total < 0.05 mg/l 05/29/87 3:17 pm GS
EPA storet number 01067

Orthophosphate 0.62 mg/l 05/28/87 1:30 pm JA

Lead total < 0.1 mg/l 05/29/87 11:00 am GS
EPA storet number 01051

Phenolics total recoverable < 0.05 mg/l 06/01/87 1:00 pm NDW
EPA storet number 32730

Priority Pollutants enclosure

Selenium total < 0.05 mg/l 05/28/87 4:19 pm GS
EPA storet number 01147

Sulfate total 87 mg/l 06/01/87 8:30 am JA
EPA storet number 00945

Organic carbon total 62 mg/l 06/02/87 2:45 pm JA
EPA storet number 00680

Volatile organics enclosure 05/28/87

Zinc total 0.52 mg/l 05/29/87 3:50 pm GS
EPA storet number 01092

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec

Daniel D. Pastalaniec



SOUTHERN PETROLEUM LABORATORIES, INC.

Sample ID:Law--2080--TS-E

SPL Lab ID:93698

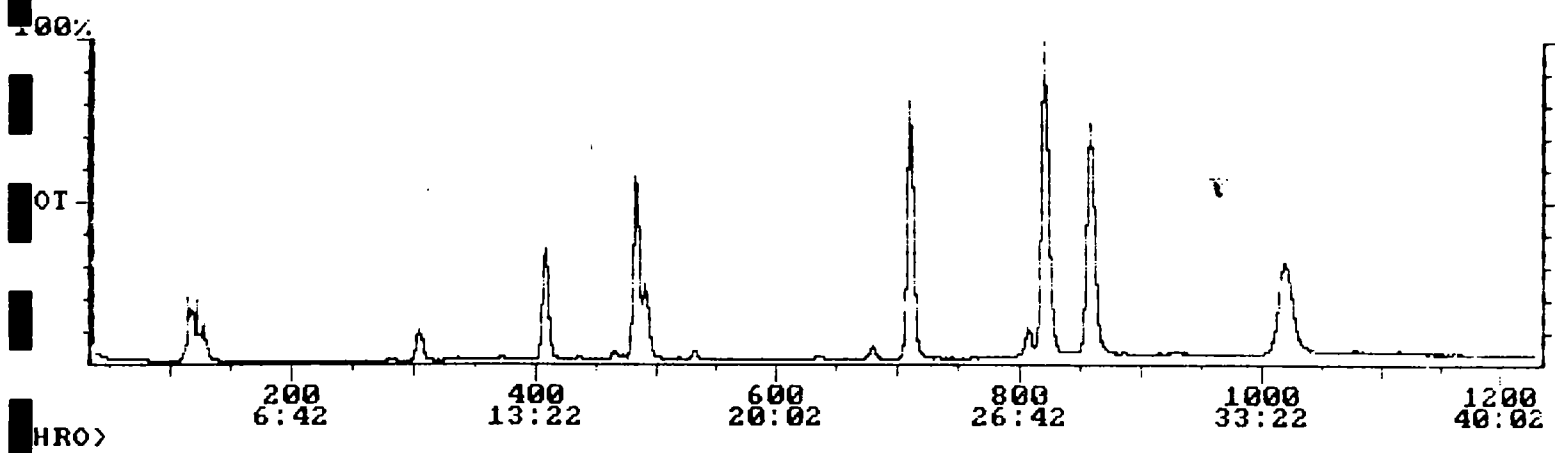
Date Injected 5-28-87

ND = Not detected or below 5 ug/l

VOLATILES

SCAN	COMPOUND	ug/l
406	Bromochloromethane(Int. Std.)	50
710	1,4-Difluorobenzene(Int.Std.)	50
856	Chlorobenzene-d5(Int.Std.)	50
ND	Acrolein	
ND	Acrylonitrile	
ND	2-Chloroethylvinyl ether	
ND	Bis(chloromethyl)ether	
ND	Chloromethane	
ND	Bromomethane	
ND	Dichlorodifluoromethane	
ND	Vinyl chloride	
ND	Chloroethane	
ND	Methylene chloride	
ND	Trichlorofluoromethane	
ND	1,1-Dichloroethene	
ND	1,1-Dichloroethane	
ND	trans-1,2-Dichloroethene	
ND	Chloroform	
ND	1,2-Dichloroethane	
ND	1,1,1-Trichloroethane	
ND	Carbon tetrachloride	
ND	Bromodichloromethane	
ND	1,2-Dichloropropane	
ND	trans-1,3-Dichloropropene	
ND	Trichloroethene	
ND	cis-1,3-Dichloropropene	
ND	Benzene	
ND	1,1,2-Trichloroethane	
ND	Dibromochloromethane	
ND	Bromoform	
ND	1,1,2,2-Tetrachloroethane	
ND	Tetrachloroethene	
ND	Toluene	
ND	Chlorobenzene	
ND	Ethylbenzene	
ND	Xylenes	
490	1,2-Dichloroethane-d4(Surr.)	87% Rec
819	Toluene d-8(Surr.)	88% Rec
1018	Bromofluorobenzene(Surr.)	85% Rec

SOUTHERN PETROLEUM LABORATORIES, INC.



Log File Filename: LAW93698 Acquired: May-28-1987 At: 14:07:19 (2:07 pm)
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-E---5/25/87--50 UG/L I.S.---(X 1)
 Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230

Acqu. Parameters
 Acqu. Mode: M.I.D
 Scan Range: 35-260 amu
 Scan Time: 2.000 secs
 Threshold: 1 counts
 A.G.C. Mode: ON
 Micro-Scans: 10
 Fil/Mul Delay: 0 secs
 Sched Time: 41 minutes
 User Abort: no

ITD Calibration
 Slope: 6.316 dacs/amu
 Std Dev: 0.042 dacs/amu
 Defect: 0 mmu/100amu

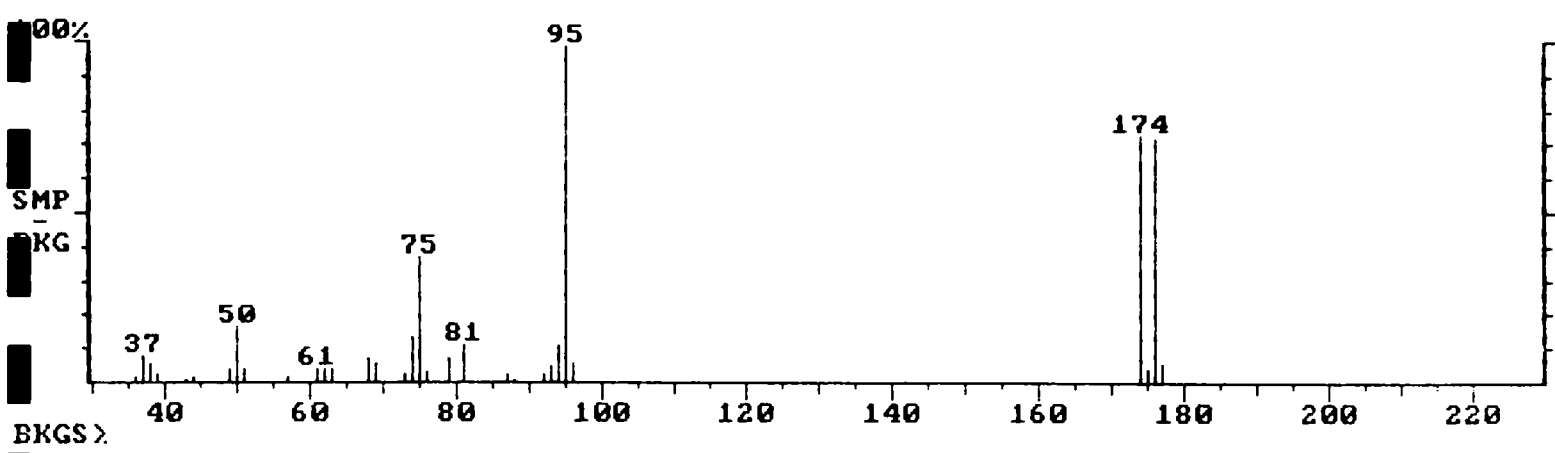
Instrument
 Filament #: 1
 Multiplier: 1800 Volts
 Temp Set Pt: 220 C

Mid-Tune Sens: 9000
 (1) 35-80 u Tune: 25
 (2) 81-130 u Tune: 41
 (3) 131-176 u Tune: 55
 (4) 177-260 u Tune: 71

Temperatures Start End
 Open Split: 209 229 C
 Xfer Line: 222 210 C
 Exit Nozzle: 218 214 C
 Manifold: 188 195 C

<no entrys logged>

Background Subtract D:\DATA\LAW93698 Acquired: May-28-1987 14:07:19
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-E---5/25/87--50 UG/L I.S.---(X 1)
 Average of: 1022 to 1022 Minus: 972 to 972 100% = 3588



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 93698
 Client Sample ID: TS-E

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 05/29/87
 Date Analyzed: 06/01/87
 Dilution Factor: 2.0

METHOD 625

CAS Number		UG/L	CAS Number		UG/L
2-75-9	N-Nitrosodimethylamine . . .	20 <	100-02-7	4-Nitrophenol	100 <
108-95-2	Phenol	20 <	121-14-2	2,4-Dinitrotoluene	20 <
111-44-4	bis(2-Chloroethyl)Ether . . .	20 <	606-20-2	2,6-Dinitrotoluene	20 <
5-57-8	2-Chlorophenol	20 <	84-66-2	Diethylphthalate	20 <
41-73-1	1,3-Dichlorobenzene	20 <	7005-72-3	4-Chlorophenyl-phenylether	20 <
106-46-7	1,4-Dichlorobenzene	20 <	86-73-7	Fluorene	20 <
5-50-1	1,2-Dichlorobenzene	20 <	534-52-1	4,6-Dinitro-2-Methylphenol	100 <
9638-32-9	bis(2-Chloroisopropyl)Ether	20 <	86-30-6	N-Nitrosodiphenylamine (1)	20 <
621-64-7	N-Nitroso-Di-n-Propylamine	20 <	101-55-3	4-Bromophenyl-phenylether	20 <
67-72-1	Hexachloroethane	20 <	118-74-1	Hexachlorobenzene	20 <
8-95-3	Nitrobenzene	20 <	87-86-5	Pentachlorophenol	100 <
78-59-1	Isophorone	20 <	85-01-8	Phenanthrene	20 <
88-75-5	2-Nitrophenol	20 <	120-12-7	Anthracene	20 <
05-67-9	2,4-Dimethylphenol	20 <	84-74-2	Di-n-Butylphthalate	20 <
11-91-1	bis(2-Chloroethoxy)Methane	20 <	206-44-0	Fluoranthene	20 <
120-83-2	2,4-Dichlorophenol	20 <	129-00-0	Pyrene	20 <
120-82-1	1,2,4-Trichlorobenzene . . .	20 <	85-68-7	Butylbenzylphthalate	20 <
1-20-3	Naphthalene	20 <	56-55-3	Benzo(a)Anthracene	20 <
87-68-3	Hexachlorobutadiene	20 <	117-81-7	bis(2-Ethylhexyl)Phthalate	20 <
59-50-7	4-Chloro-3-Methylphenol . . .	20 <	218-01-9	Chrysene	20 <
7-47-4	Hexachlorocyclopentadiene	20 <	117-84-0	Di-n-Octyl Phthalate	20 <
8-06-2	2,4,6-Trichlorophenol	20 <	205-99-2	Benzo(b)Fluoranthene	20 <
91-58-7	2-Chloronaphthalene	20 <	207-08-9	Benzo(k)Fluoranthene	20 <
31-11-3	Dimethyl Phthalate	20 <	50-32-8	Benzo(a)Pyrene	20 <
208-96-8	Acenaphthylene	20 <	193-39-5	Indeno(1,2,3-cd)Pyrene . . .	20 <
606-20-2	2,6-Dinitrotoluene	20 <	53-70-3	Dibenz(a,h)Anthracene	20 <
83-32-9	Acenaphthene	20 <	191-24-2	Benzo(g,h,i)Perylene	20 <
1-28-5	2,4-Dinitrophenol	100 <			

The Lab ID for data on this page is B93698.

(1) - Cannot be separated from diphenylamine

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC

05/01/87 9:51:00

DATA: B93698 #1

CALI: B93698 #3

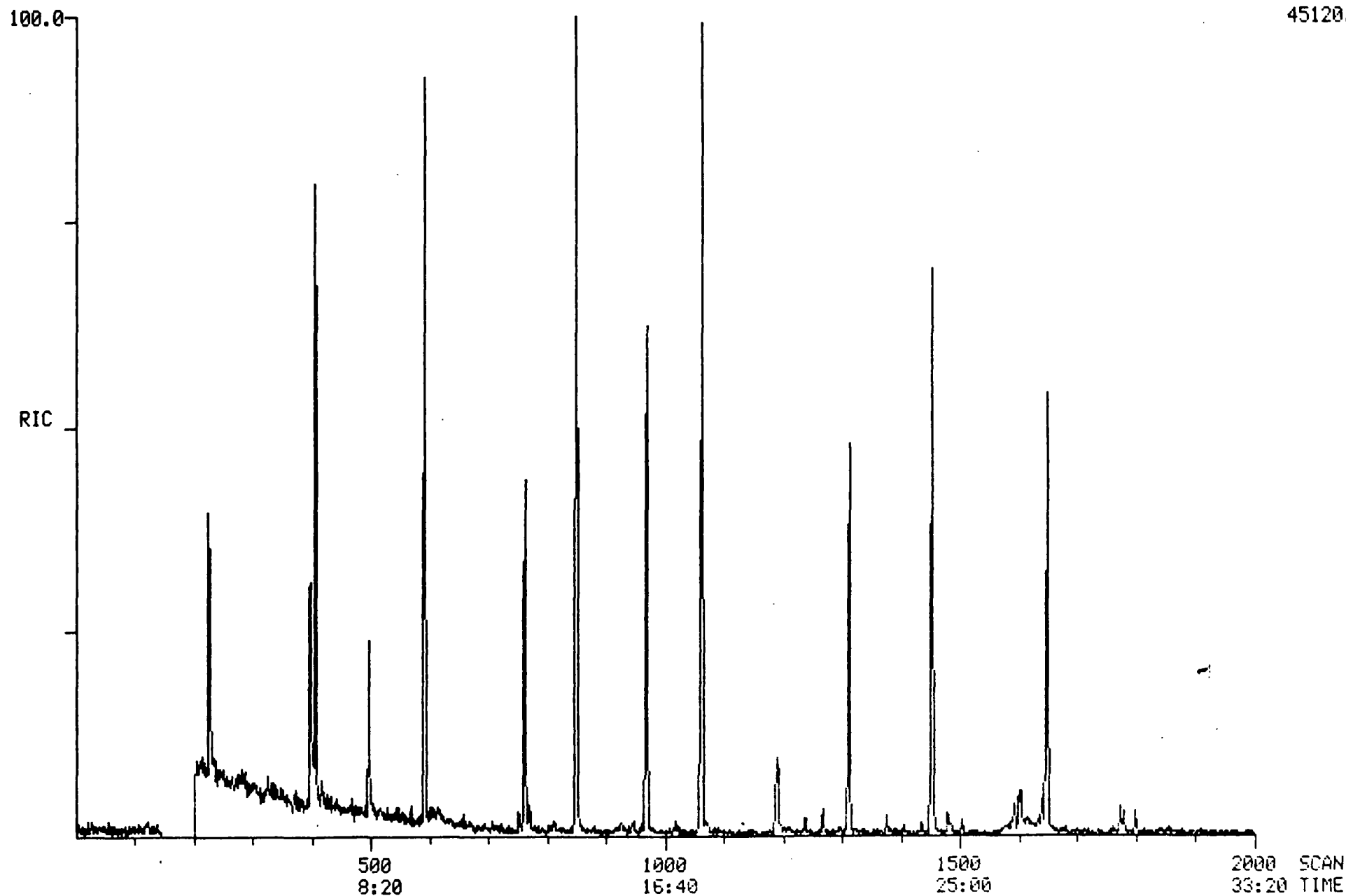
SCANS 1 TO 2000

SAMPLE: LAW-HT208087H-5/27(DR)-5/29(DE)-500M-1M

CONDS.: 40/4-300@10-RTX5-.32-.25-20 PSI

RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

45120.



6/1/87 9:51:45
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: B93698 ACQUIRING
6/01/87 9:51:00 + 0:02 Free sectors: 8882 Scan: 2 of 2000
Sample: LAW-HT208087H-5/27(DR)-5/29(DE)-500M-1M
Conds.: 40/4-300@10-RTX5-.32-.25-20 PSI
Formula: Instrument: A Weight: 0.000
Submitted by: LAW ENG. Analyst: DOONG Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 0 min Int. oven : 280 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 34.5
2 40 - 300 10.0 26.0 30.5 Divert 34.5 6.0
3 300 - 300 - 3.0 33.5
4 300 - 300 - 1.0 34.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05

Int S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 80 Min Area: 25
DC Threshold: 1 Baseline: 0

**** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type Q
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

6/1/87 10:25:08
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	506.3	2000.0	25.3	45951.	23. 23.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093899
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
TS-P1
Sump Pit 1

Date Sampled: 05/26/87
Date Received: 05/27/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u>	< 0.05	<u>mg/l</u> 05/28/87	1:10 pm	GS
EPA storet number 01077				
<u>Arsenic total</u>	< 0.05	<u>mg/l</u> 05/28/87	2:43 pm	GS
EPA storet number 01002				
<u>Barium total</u>	2.5	<u>mg/l</u> 06/02/87	1:52 pm	GS
EPA storet number 01007				
<u>Boron total</u>	0.45	<u>mg/l</u> 06/02/87	11:00 am	APM
EPA storet number 01022				
<u>Cadmium total</u>	< 0.02	<u>mg/l</u> 05/28/87	1:42 pm	GS
EPA storet number 01027				
<u>Chloride</u>	128	<u>mg/l</u> 06/01/87	10:00 am	JA
EPA storet number 00940				
<u>Chromium total</u>	< 0.05	<u>mg/l</u> 05/28/87	11:48 am	GS
EPA storet number 01034				
<u>Copper total</u>	< 0.05	<u>mg/l</u> 05/29/87	11:26 am	GS
EPA storet number 01042				
<u>Cyanide total</u>	< 0.05	<u>mg/l</u> 06/03/87	10:00 am	APM
EPA storet number 00720				
<u>Formaldehyde</u>	< 1	<u>mg/l</u> 06/02/87	5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093699, page 2
Law Engineering Testing Company

Mercury total EPA storet number 71900	< 0.005	<u>mg/l</u> 05/20/87	8:00 am	GS
Phosphorus EPA storet number 00669	1.75	<u>mg/l</u> 05/28/87	2:00 pm	JA
Manganese total EPA storet number 01055	0.40	<u>mg/l</u> 06/01/87	3:30 pm	GS
Nickel total EPA storet number 01067	< 0.05	<u>mg/l</u> 05/29/87	3:17 pm	GS
Orthophosphate	1.45	<u>mg/l</u> 05/28/87	1:30 pm	JA
Lead total EPA storet number 01051	< 0.1	<u>mg/l</u> 05/29/87	11:00 am	GS
Phenolics total recoverable EPA storet number 32730	< 0.05	<u>mg/l</u> 06/01/87	1:00 pm	NDW
Priority Pollutants	enclosure			
Selenium total EPA storet number 01147	< 0.05	<u>mg/l</u> 05/28/87	4:19 pm	GS
Sulfate total EPA storet number 00945	89	<u>mg/l</u> 05/29/87	12:30 pm	JA
Organic carbon total EPA storet number 00680	83	<u>mg/l</u> 06/02/87	2:45 pm	JA
Volatile organics	enclosure	05/28/87		
Zinc total EPA storet number 01092	0.06	<u>mg/l</u> 05/29/87	3:50 pm	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec



SOUTHERN PETROLEUM LABORATORIES, INC.

Sample ID: Law--2080--TS-P1

SPL Lab ID: 93699

Date Injected 5-28-87

ND = Not detected or below 5 ug/l

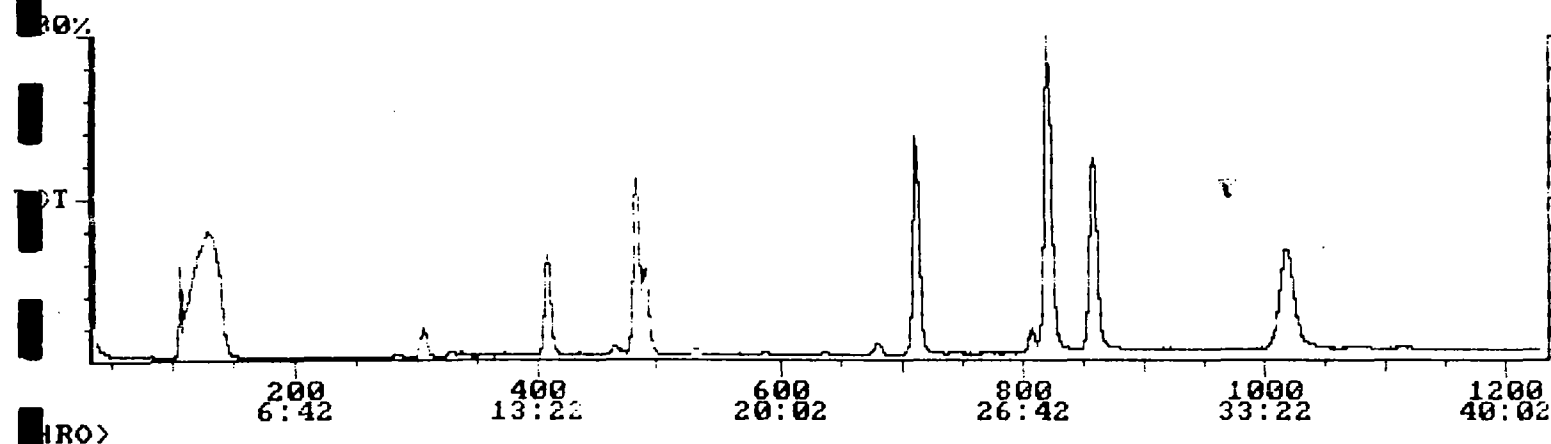
VOLATILES

SCAN	COMPOUND	ug/l
407	Bromochloromethane(Int. Std.)	50
710	1,4-Difluorobenzene(Int.Std.)	50
856	Chlorobenzene-d5(Int.Std.)	50
ND	Acrolein	
ND	Acrylonitrile	
ND	2-Chloroethylvinyl ether	
ND	Bis(chloromethyl)ether	
ND	Chloromethane	
ND	Bromomethane	
ND	Dichlorodifluoromethane	
ND	Vinyl chloride	
ND	Chloroethane	
ND	Methylene chloride	
ND	Trichlorofluoromethane	
ND	1,1-Dichloroethene	
ND	1,1-Dichloroethane	
ND	trans-1,2-Dichloroethene	
ND	Chloroform	
ND	1,2-Dichloroethane	
ND	1,1,1-Trichloroethane	
ND	Carbon tetrachloride	
ND	Bromodichloromethane	
ND	1,2-Dichloropropane	
ND	trans-1,3-Dichloropropene	
ND	Trichloroethene	
ND	cis-1,3-Dichloropropene	
ND	Benzene	
ND	1,1,2-Trichloroethane	
ND	Dibromochloromethane	
ND	Bromoform	
ND	1,1,2,2-Tetrachloroethane	
ND	Tetrachloroethene	
ND	Toluene	
ND	Chlorobenzene	
ND	Ethylbenzene	
ND	Xylenes	
491	1,2-Dichloroethane-d4(Surr.)	105% Rec
819	Toluene d-8(Surr.)	105% Rec
1018	Bromofluorobenzene(Surr.)	109% Rec

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Cantalero

Chromatogram D:\DATA\LAW93699 Acquired: May-28-1987 15:05:49
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P1---5/25/87--50 UG/L I.S.---(X 1)
 Scan Range: 35 - 1230 Scan: 35 Int = 7340 @ 1:12 RIC: 100% = 77472

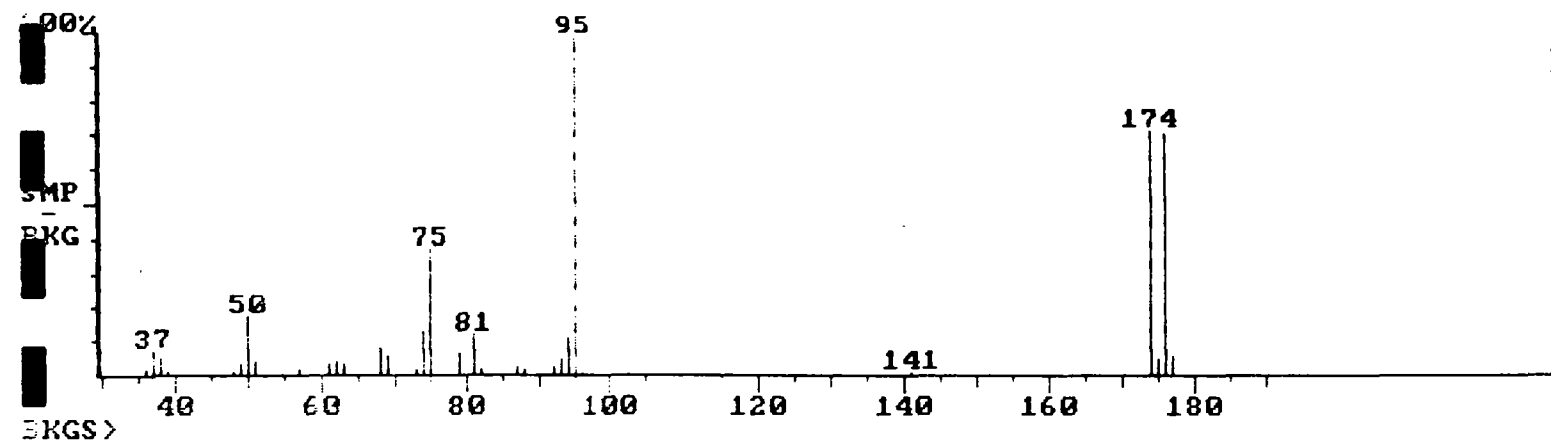


Log File Filename: LAW93699 Acquired: May-28-1987 At: 15:05:49 (3:05 pm)
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P1---5/25/87--50 UG/L I.S.---(X 1)
 Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230

Acqu Parameters	MID Calibration	Instrument
Acqu Mode: M.I.D	Slope 6.316 dacs/amu	Filament #: 1
Scan Range: 35-260 amu	Std Dev 0.042 dacs/amu	Multiplier: 1800 Volts
Scan Time: 2.000 secs	Defect 0 mmu/100amu	Temp Set Pt: 220 C
Threshold: 1 counts		
A.G.C. Mode: ON		
Micro-Scans: 10		
Fil/Mul Delay: 0 secs		
Sched Time: 41 minutes		
User Abort: no		

<no entries logged>

Background Subtract D:\DATA\LAW93699 Acquired: May-28-1987 15:05:49
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P1---5/25/87--50 UG/L I.S.---(X 1)
 Average of: 1022 to 1022 Minus: 964 to 964 100% = 4092



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: S/L Houston
 Lab Sample ID: 93699
 Client Sample ID: T-21

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 06/01/87
 Date Analyzed: 06/02/87
 Dilution Factor: 2.0

METHOD 625

CAS Number	UG/L	CAS Number	UG/L
62-75-9	N-Nitrosodimethylamine . . . 20 <	100-02-7	4-Nitrophenol 100 <
108-95-2	Phenol 20 <	121-14-2	2,4-Dinitrotoluene 20 <
111-44-4	bis(2-Chloroethyl)Ether . . . 20 <	606-20-2	2,6-Dinitrotoluene 20 <
95-57-8	2-Chlorophenol 20 <	84-66-2	Diethylphthalate 20 <
541-73-1	1,3-Dichlorobenzene 20 <	7005-72-3	4-Chlorophenyl-phenylether . . . 20 <
106-46-7	1,4-Dichlorobenzene 20 <	86-73-7	Fluorene 20 <
95-50-1	1,2-Dichlorobenzene 20 <	534-52-1	4,6-Dinitro-2-Methylphenol . . . 100 <
39638-32-9	bis(2-Chloroisopropyl)Ether . . 20 <	86-30-6	N-Nitrosodiphenylamine (1) . . . 20 <
121-64-7	N-Nitroso-Di-n-Propylamine . . 20 <	101-55-3	4-Bromophenyl-phenylether . . . 20 <
77-72-1	Hexachloroethane 20 <	118-74-1	Hexachlorobenzene 20 <
98-95-3	Nitrobenzene 20 <	87-86-5	Pentachlorophenol 100 <
78-59-1	Isophorone 20 <	85-01-8	Phenanthrene 20 <
83-75-5	2-Nitrophenol 20 <	120-12-7	Anthracene 20 <
105-67-9	2,4-Dimethylphenol 20 <	84-74-2	Di-n-Butylphthalate 20 <
111-91-1	bis(2-Chloroethoxy)Methane . . 20 <	206-44-0	Fluoranthene 20 <
120-83-2	2,4-Dichlorophenol 20 <	129-00-0	Pyrene 20 <
120-82-1	1,2,4-Trichlorobenzene 20 <	85-68-7	Butylbenzylphthalate 20 <
91-20-3	Naphthalene 20 <	56-55-3	Benzo(a)Anthracene 20 <
77-68-3	Hexachlorobutadiene 20 <	117-81-7	bis(2-Ethylhexyl)Phthalate . . . 20 <
99-50-7	4-Chloro-3-Methylphenol 20 <	218-01-9	Chrysene 20 <
77-47-4	Hexachlorocyclopentadiene . . . 20 <	117-84-0	Di-n-Octyl Phthalate 20 <
88-06-2	2,4,6-Trichlorophenol 20 <	205-99-2	Benzo(b)Fluoranthene 20 <
11-58-7	2-Chloronaphthalene 20 <	207-08-9	Benzo(k)Fluoranthene 20 <
131-11-3	Dimethyl Phthalate 20 <	50-32-8	Benzo(a)Pyrene 20 <
208-96-8	Acenaphthylene 20 <	193-39-5	Indeno(1,2,3-cd)Pyrene 20 <
106-20-2	2,6-Dinitrotoluene 20 <	53-70-3	Dibenz(a,h)Anthracene 20 <
13-32-9	Acenaphthene 20 <	191-24-2	Benzo(g,h,i)Perylene 20 <
51-28-5	2,4-Dinitrophenol 100 <		

The Lab ID for data on this page is B93699.

(1) - Cannot be separated from diphenylamine

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093700
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
TS-P2

Sump Pit 2

Date Sampled: 05/26/87

Date Received: 05/27/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u>	< 0.05	<u>mg/l</u> 05/28/87	1:10 pm	GS
EPA storet number 01077				
<u>Arsenic total</u>	< 0.05	<u>mg/l</u> 05/28/87	2:43 pm	GS
EPA storet number 01002				
<u>Barium total</u>	2.6	<u>mg/l</u> 06/02/87	1:52 pm	GS
EPA storet number 01007				
<u>Boron total</u>	0.45	<u>mg/l</u> 06/02/87	11:00 am	APM
EPA storet number 01022				
<u>Cadmium total</u>	< 0.02	<u>mg/l</u> 05/28/87	1:42 pm	GS
EPA storet number 01027				
<u>Chloride</u>	32	<u>mg/l</u> 06/01/87	10:00 am	JA
EPA storet number 00940				
<u>Chromium total</u>	< 0.05	<u>mg/l</u> 05/28/87	11:48 am	GS
EPA storet number 01034				
<u>Copper total</u>	< 0.05	<u>mg/l</u> 05/29/87	11:26 am	GS
EPA storet number 01042				
<u>Cyanide total</u>	< 0.05	<u>mg/l</u> 06/03/87	10:00 am	APM
EPA storet number 00720				
<u>Formaldehyde</u>	< 1	<u>mg/l</u> 06/02/87	5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093700, page 2
Law Engineering Testing Company

<u>Mercury total</u> EPA storet number 71900	< 0.005	<u>mg/l</u>	05/20/87	8:00 am	GS
<u>Phosphorus</u> EPA storet number 00669	1.12	<u>mg/l</u>	05/28/87	2:00 pm	JA
<u>Manganese total</u> EPA storet number 01055	2.0	<u>mg/l</u>	06/01/87	3:30 pm	GS
<u>Nickel total</u> EPA storet number 01067	< 0.05	<u>mg/l</u>	05/29/87	3:17 pm	GS
<u>Orthophosphate</u>	0.90	<u>mg/l</u>	05/28/87	1:30 pm	JA
<u>Lead total</u> EPA storet number 01051	< 0.1	<u>mg/l</u>	05/29/87	11:00 am	GS
<u>Phenolics total recoverable</u> EPA storet number 32730	< 0.05	<u>mg/l</u>	06/01/87	5:00 pm	NDW.
<u>Priority Pollutants</u>	enclosure				
<u>Selenium total</u> EPA storet number 01147	< 0.05	<u>mg/l</u>	05/28/87	4:19 pm	GS
<u>Sulfate total</u> EPA storet number 00945	24	<u>mg/l</u>	05/29/87	12:30 pm	JA
<u>Organic carbon total</u> EPA storet number 00680	65	<u>mg/l</u>	06/02/87	2:45 pm	JA
<u>Volatile organics</u>	enclosure		05/28/87		
<u>Zinc total</u> EPA storet number 01092	0.38	<u>mg/l</u>	05/29/87	3:50 pm	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec



SOUTHERN PETROLEUM LABORATORIES, INC.

Sample ID:Law--2080--TS-P2

SPL Lab ID:93700

Date Injected 5-28-87

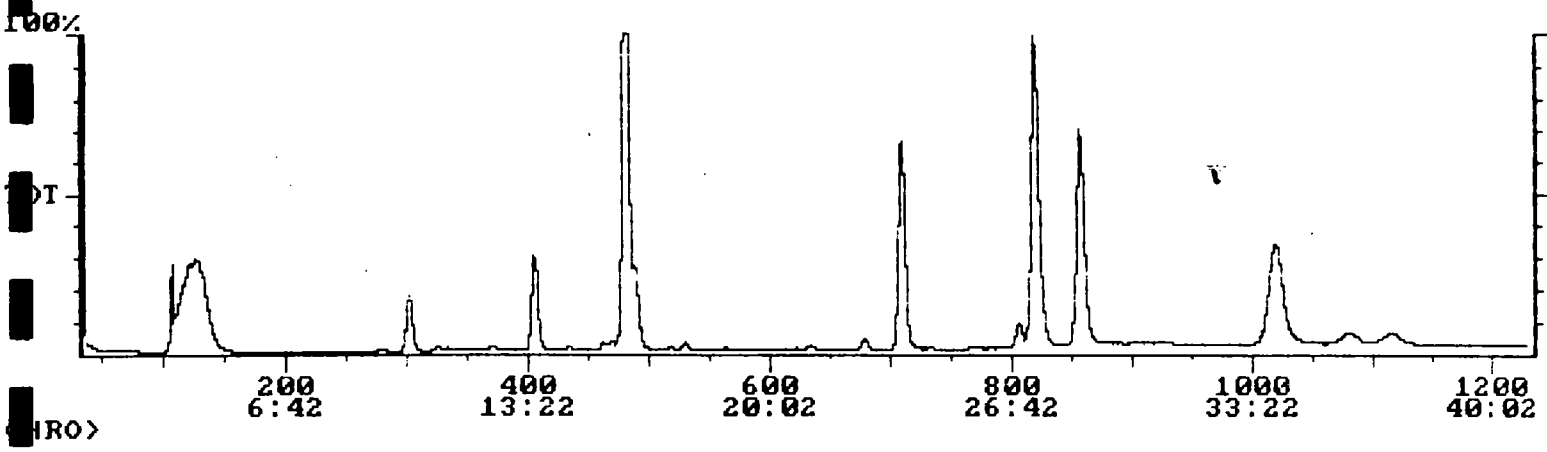
ND = Not detected or below 5 ug/l

VOLATILES

SCAN	COMPOUND	ug/l
404	Bromochloromethane(Int. Std.)	50
708	1,4-Difluorobenzene(Int.Std.)	50
856	Chlorobenzene-d5(Int.Std.)	50
ND	Acrolein	
ND	Acrylonitrile	
ND	2-Chloroethylvinyl ether	
ND	Bis(chloromethyl)ether	
ND	Chloromethane	
ND	Bromomethane	
ND	Dichlorodifluoromethane	
ND	Vinyl chloride	
ND	Chloroethane	
ND	Methylene chloride	
ND	Trichlorofluoromethane	
ND	1,1-Dichloroethene	
ND	1,1-Dichloroethane	
ND	trans-1,2-Dichloroethene	
ND	Chloroform	
ND	1,2-Dichloroethane	
ND	1,1,1-Trichloroethane	
ND	Carbon tetrachloride	
ND	Bromodichloromethane	
ND	1,2-Dichloropropane	
ND	trans-1,3-Dichloropropene	
ND	Trichloroethene	
ND	cis-1,3-Dichloropropene	
ND	Benzene	
ND	1,1,2-Trichloroethane	
ND	Dibromochloromethane	
ND	Bromoform	
ND	1,1,2,2-Tetrachloroethane	
ND	Tetrachloroethene	
ND	Toluene	
ND	Chlorobenzene	
ND	Ethylbenzene	
1078	Xylenes	7
488	1,2-Dichloroethane-d4(Surr.)	105% Rec
818	Toluene d-8(Surr.)	100% Rec
1018	Bromofluorobenzene(Surr.)	103% Rec

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Bostantian

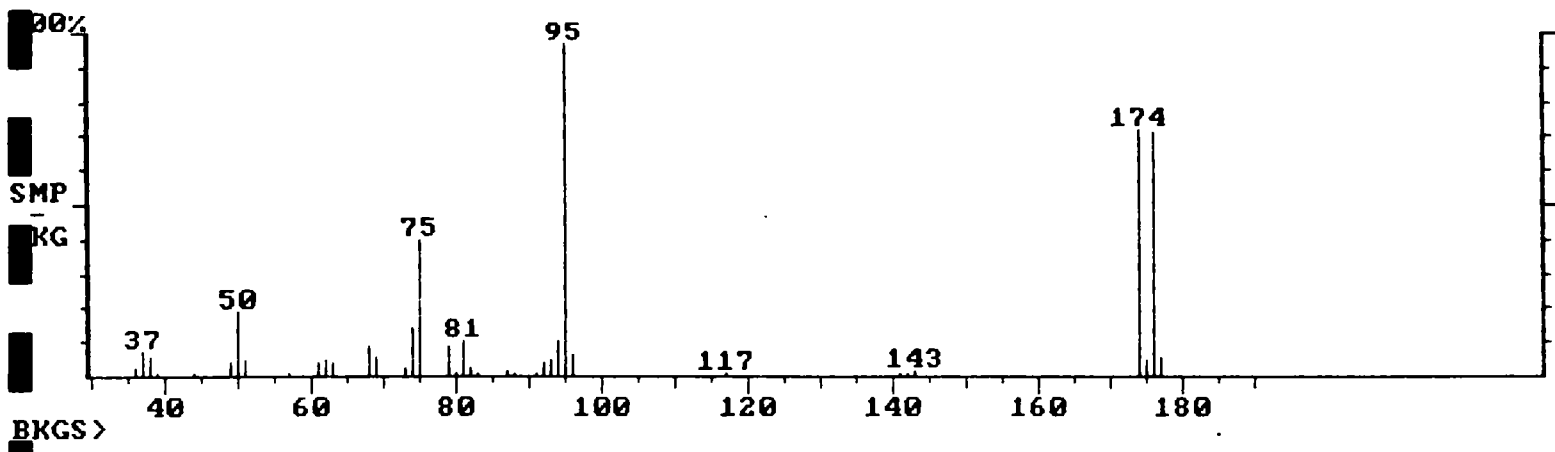


Log File Filename: LAW93700 Acquired: May-28-1987 At: 17:19:51 (5:19 PM)
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P2---5/25/87--50 UG/L I.S.---(X 1)
 Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230

Acqu Parameters		IID Calibration		Instrument	
Acqu Mode:	M.I.D	Slope:	6.316 dacs/amu	Filament #:	1
Scan Range:	35-260 amu	Std Dev:	0.042 dacs/amu	Multiplier:	1800 Volts
Scan Time:	2.000 secs	Defect:	0 mmu/100amu	Imp Set Pt:	220 C
Threshold:	1 counts				
A.G.C. Mode:	ON				
Micro-Scans:	10				
Fil/Mul Delay:	0 secs				
Sched Time:	41 minutes				
User Abort:	no				
		MID Tune		Temperatures	
		Sens:	9000	Start	End
	(1)	35-80 u	Tune: 25	Open Split:	209 231 C
	(2)	81-130 u	Tune: 41	Xfer Line:	207 209 C
	(3)	131-176 u	Tune: 55	Exit Nozzle:	216 216 C
	(4)	177-260 u	Tune: 71	Manifold:	198 197 C

<no entrys logged>

Background Subtract D:\DATA\LAW93700 Acquired: May-28-1987 17:19:51
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P2---5/25/87--50 UG/L I.S.---(X 1)
 Average of: 1024 to 1024 Minus: 1058 to 1058 100% = 3226



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 93700
 Client Sample ID: TS-P2

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 06/01/87
 Date Analyzed: 06/02/87
 Dilution Factor: 2.0

METHOD 625

CAS Number		UG/L	CAS Number		UG/L
62-75-9	N-Nitrosodimethylamine . . .	20 <	100-02-7	4-Nitrophenol	100 <
98-95-2	Phenol	20 <	121-14-2	2,4-Dinitrotoluene	20 <
11-44-4	bis(2-Chloroethyl)Ether . . .	20 <	606-20-2	2,6-Dinitrotoluene	20 <
95-57-8	2-Chlorophenol	20 <	84-66-2	Diethylphthalate	20 <
541-73-1	1,3-Dichlorobenzene	20 <	7005-72-3	4-Chlorophenyl-phenylether	20 <
106-46-7	1,4-Dichlorobenzene	20 <	86-73-7	Fluorene	20 <
95-50-1	1,2-Dichlorobenzene	20 <	534-52-1	4,6-Dinitro-2-Methylphenol	100 <
39638-32-9	bis(2-Chloroisopropyl)Ether	20 <	86-30-6	N-Nitrosodiphenylamine (1)	20 <
21-64-7	N-Nitroso-Di-n-Propylamine	20 <	101-55-3	4-Bromophenyl-phenylether	20 <
7-72-1	Hexachloroethane	20 <	118-74-1	Hexachlorobenzene	20 <
98-95-3	Nitrobenzene	20 <	87-86-5	Pentachlorophenol	100 <
78-59-1	Isophorone	20 <	85-01-8	Phenanthrene	20 <
8-75-5	2-Nitrophenol	20 <	120-12-7	Anthracene	20 <
105-67-9	2,4-Dimethylphenol	20 <	84-74-2	Di-n-Butylphthalate	20 <
111-91-1	bis(2-Chloroethoxy)Methane	20 <	206-44-0	Fluoranthene	20 <
20-83-2	2,4-Dichlorophenol	20 <	129-00-0	Pyrene	20 <
20-82-1	1,2,4-Trichlorobenzene . . .	20 <	85-68-7	Butylbenzylphthalate	20 <
91-20-3	Naphthalene	20 <	56-55-3	Benzo(a)Anthracene	20 <
7-68-3	Hexachlorobutadiene	20 <	117-81-7	bis(2-Ethylhexyl)Phthalate	20 <
9-50-7	4-Chloro-3-Methylphenol . . .	20 <	218-01-9	Chrysene	20 <
77-47-4	Hexachlorocyclopentadiene	20 <	117-84-0	Di-n-Octyl Phthalate	20 <
88-06-2	2,4,6-Trichlorophenol	20 <	205-99-2	Benzo(b)Fluoranthene	20 <
1-58-7	2-Chloronaphthalene	20 <	207-08-9	Benzo(k)Fluoranthene	20 <
131-11-3	Dimethyl Phthalate	20 <	50-32-8	Benzo(a)Pyrene	20 <
208-96-8	Acenaphthylene	20 <	193-39-5	Indeno(1,2,3-cd)Pyrene	20 <
106-20-2	2,6-Dinitrotoluene	20 <	53-70-3	Dibenz(a,h)Anthracene	20 <
13-32-9	Acenaphthene	20 <	191-24-2	Benzo(g,h,i)Perylene	20 <
51-28-5	2,4-Dinitrophenol	100 <			

The Lab ID for data on this page is B93700.

(1) - Cannot be separated from diphenylamine

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC

06/02/87 9:54:00

SAMPLE: LAW-HT208087H-TS-P2-500-1-5/27(DR)-6-1(DE)

CONDS.: 40/4-300@10-RTX5

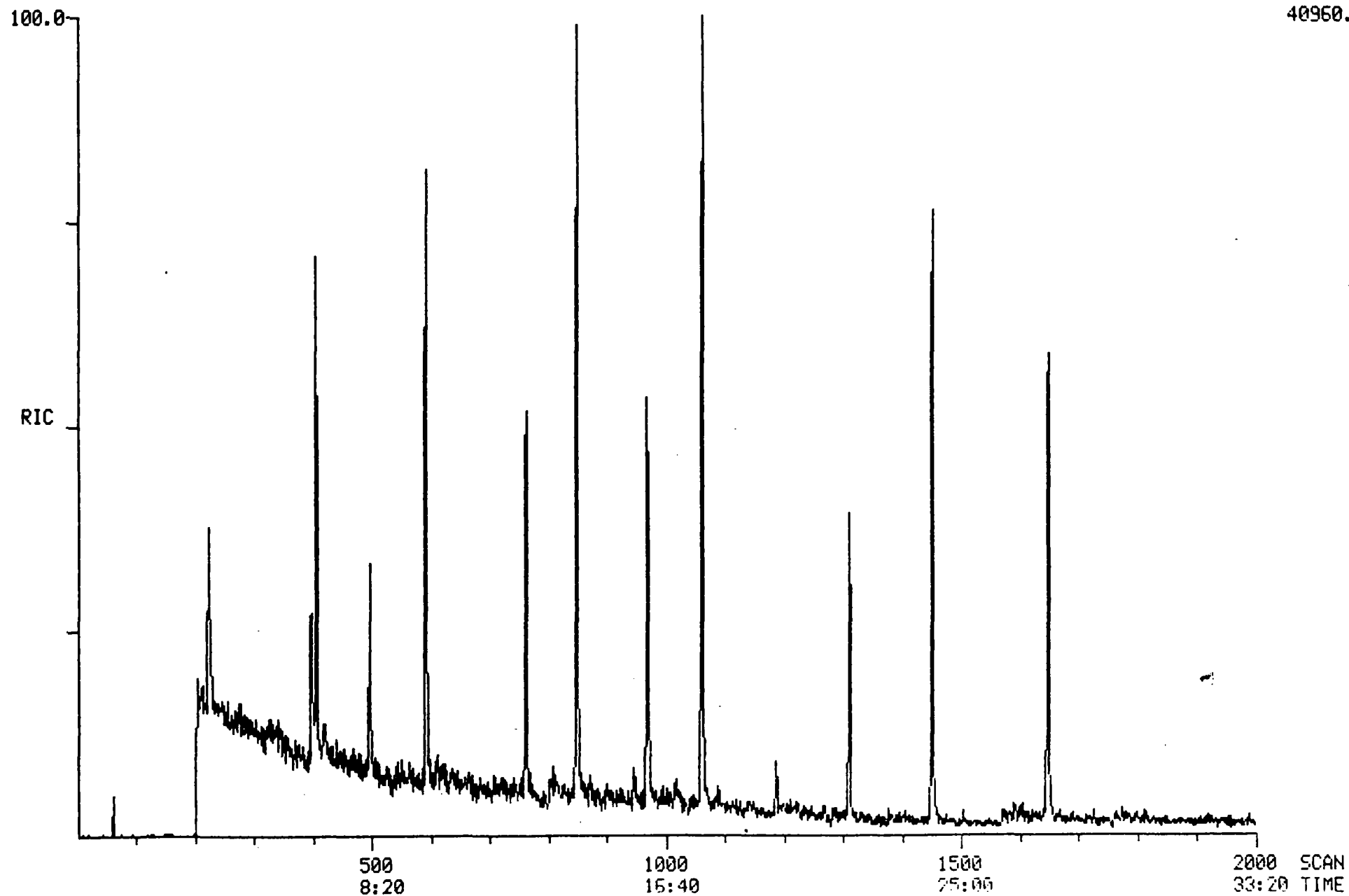
RANGE: G 1,2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: B93700 #1

CALI: B93700 #3

SCANS 1 TO 2000

40960.



6/2/87 9:54:39
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: B93700 ACQUIRING
6/02/87 9:54:00 + 0:02 Free sectors: 6186 Scan: 2 of 2000
Sample: LAW-HT208087H-TS-P2-500-1-5/27(DR)-6-1(DE)
Conds.: 40/4-300@10-RTX5
Formula:
Submitted by: LAW ENG. Instrument: A Weight: 0.000
Analyst: DIFED Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 0 min Int. oven : 280 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 34.5
2 40 - 300 10.0 26.0 30.5 Divert 34.5 6.0
3 300 - 300 - 3.0 33.5
4 300 - 300 - 1.0 34.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Sent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 80 Min Area: 25
GC Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)
Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type Q
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

6/2/87 10:28:02
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	591.4	2000.0	29.6	104682.	52. 52.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093701
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
TS-P3

Sump Pit 3

Date Sampled: 05/26/87

Date Received: 05/27/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u>	< 0.05	<u>mg/l</u> 05/28/87	1:10 pm	GS
EPA storet number 01077				
<u>Arsenic total</u>	< 0.05	<u>mg/l</u> 05/28/87	2:43 pm	GS
EPA storet number 01002				
<u>Barium total</u>	< 1	<u>mg/l</u> 06/02/87	1:52 pm	GS
EPA storet number 01007				
<u>Boron total</u>	0.45	<u>mg/l</u> 06/02/87	11:00 am	APM
EPA storet number 01022				
<u>Cadmium total</u>	< 0.02	<u>mg/l</u> 05/28/87	1:42 pm	GS
EPA storet number 01027				
<u>Chloride</u>	14	<u>mg/l</u> 06/01/87	10:00 am	JA
EPA storet number 00940				
<u>Chromium total</u>	< 0.05	<u>mg/l</u> 05/28/87	11:48 am	GS
EPA storet number 01034				
<u>Copper total</u>	< 0.05	<u>mg/l</u> 05/29/87	11:26 am	GS
EPA storet number 01042				
<u>Cyanide total</u>	< 0.05	<u>mg/l</u> 06/03/87	10:00 am	APM
EPA storet number 00720				
<u>Formaldehyde</u>	< 1	<u>mg/l</u> 06/02/87	5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093701, page 2
Law Engineering Testing Company

<u>Mercury total</u> EPA storet number 71900	< 0.005	<u>mg/l</u>	05/20/87	8:00 am	GS
<u>Phosphorus</u> EPA storet number 00669	0.90	<u>mg/l</u>	05/28/87	2:00 pm	JA
<u>Manganese total</u> EPA storet number 01055	< 0.05	<u>mg/l</u>	06/01/87	3:30 pm	GS
<u>Nickel total</u> EPA storet number 01067	< 0.05	<u>mg/l</u>	05/29/87	3:17 pm	GS
<u>Orthophosphate</u>	0.25	<u>mg/l</u>	05/28/87	1:30 pm	JA
<u>Lead total</u> EPA storet number 01051	< 0.1	<u>mg/l</u>	05/29/87	11:00 am	GS
<u>Phenolics total recoverable</u> EPA storet number 32730	< 0.05	<u>mg/l</u>	06/01/87	5:00 pm	NDW.
<u>Priority Pollutants</u>	enclosure				
<u>Selenium total</u> EPA storet number 01147	< 0.05	<u>mg/l</u>	05/28/87	4:19 pm	GS
<u>Sulfate total</u> EPA storet number 00945	16	<u>mg/l</u>	05/29/87	12:30 pm	JA
<u>Organic carbon total</u> EPA storet number 00680	13	<u>mg/l</u>	06/02/87	2:45 pm	JA
<u>Volatile organics</u>	enclosure		05/28/87		
<u>Zinc total</u> EPA storet number 01092	0.18	<u>mg/l</u>	05/29/87	3:50 pm	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec



SOUTHERN PETROLEUM LABORATORIES, INC.

Sample ID:Law--2080--TS-P3

SPL Lab ID:93701

Date Injected 5-28-87

ND = Not detected or below 5 ug/l

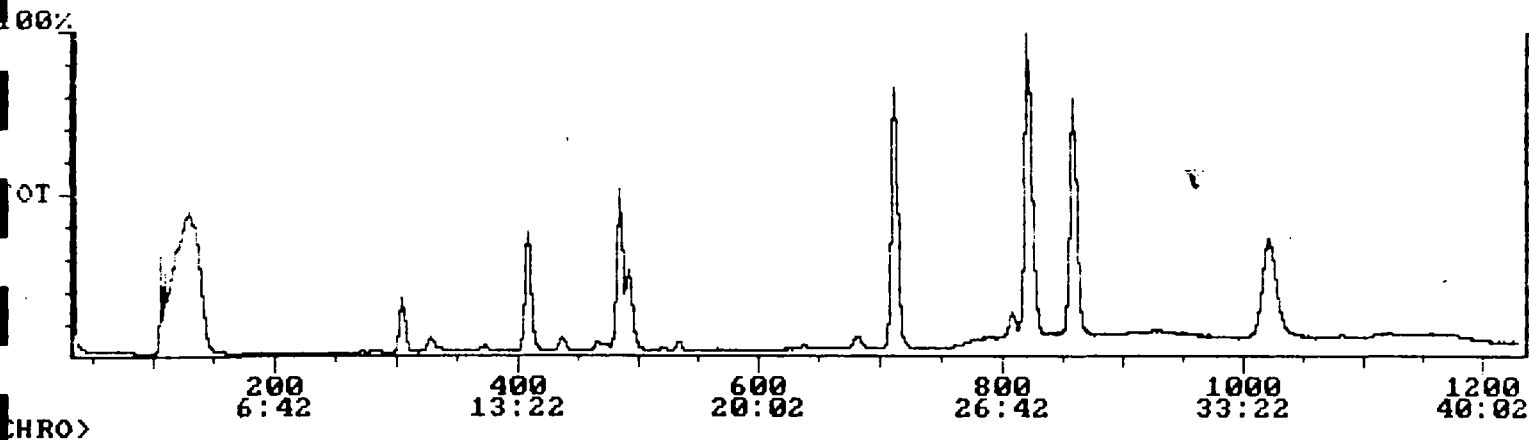
VOLATILES

SCAN	COMPOUND	ug/l
407	Bromochloromethane(Int. Std.)	50
711	1,4-Difluorobenzene(Int.Std.)	50
857	Chlorobenzene-d5(Int.Std.)	50
ND	Acrolein	
ND	Acrylonitrile	
ND	2-Chloroethylvinyl ether	
ND	Bis(chloromethyl)ether	
ND	Chloromethane	
ND	Bromomethane	
ND	Dichlorodifluoromethane	
ND	Vinyl chloride	
ND	Chloroethane	
ND	Methylene chloride	
ND	Trichlorofluoromethane	
ND	1,1-Dichloroethene	
ND	1,1-Dichloroethane	
ND	trans-1,2-Dichloroethene	
ND	Chloroform	
ND	1,2-Dichloroethane	
ND	1,1,1-Trichloroethane	
ND	Carbon tetrachloride	
ND	Bromodichloromethane	
ND	1,2-Dichloropropane	
ND	trans-1,3-Dichloropropene	
ND	Trichloroethene	
ND	cis-1,3-Dichloropropene	
ND	Benzene	
ND	1,1,2-Trichloroethane	
ND	Dibromochloromethane	
ND	Bromoform	
ND	1,1,2,2-Tetrachloroethane	
ND	Tetrachloroethene	
ND	Toluene	
ND	Chlorobenzene	
ND	Ethylbenzene	
ND	Xylenes	
491	1,2-Dichloroethane-d4(Surr.)	87% Rec
820	Toluene d-8(Surr.)	84% Rec
1020	Bromofluorobenzene(Surr.)	89% Rec

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Boulton

Chromatogram D:\DATA\LAW93701 Acquired: May-28-1987 20:20:40
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P3---50 UG/L I.S. + SURR.----- (X 1)
 Scan Range: 35 - 1230 Scan: 35 Int = 4412 @ 1:12 RIC: 100% = 74286



Log File Filename: LAW93701 Acquired: May-28-1987 At: 20:20:40 (8:20 pm)
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P3---50 UG/L I.S. + SURR.----- (X 1)
 Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230

Acqu Parameters

Acqu Mode: M I D
 Scan Range: 35-260 amu
 Scan Time: 2.000 secs
 Threshold: 1 counts
 A.G.C. Mode: ON
 Micro-Scans: 10
 Fil/Mul Delay: 0 secs
 Sched Time: 41 minutes
 User Abort: no

ITD Calibration

Slope: 6.316 dacs/amu
 Std Dev: 0.042 dacs/amu
 Defect: 0 mmu/100amu

MID Tune Sens: 9000

(1) 35-80 u Tune: 25
 (2) 81-130 u Tune: 41
 (3) 131-176 u Tune: 55
 (4) 177-260 u Tune: 71

Instrument

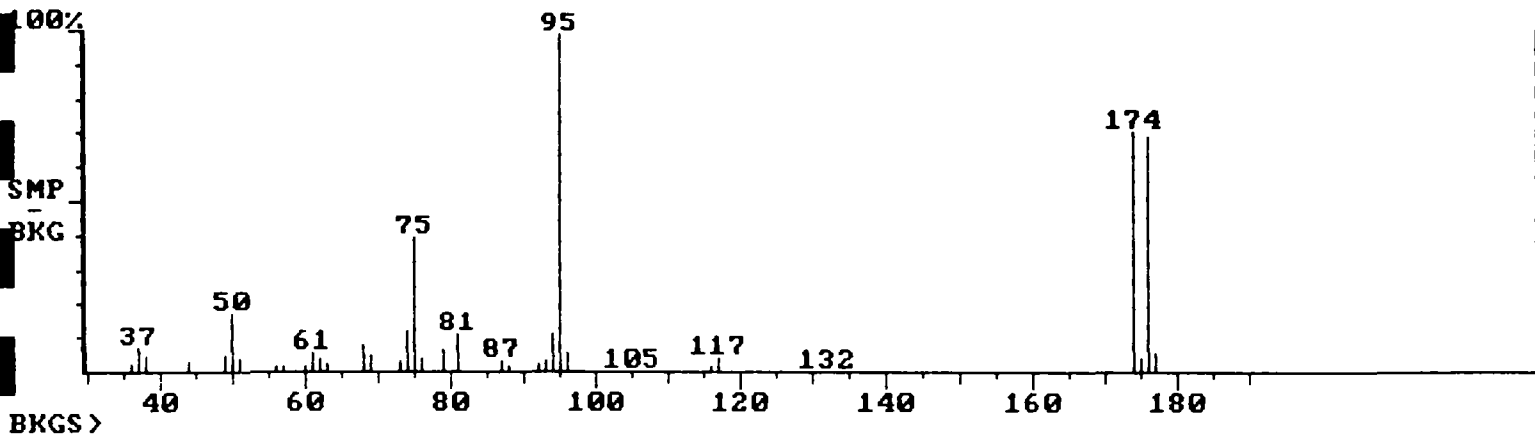
Filament #: 1
 Multiplier: 1800 Volts
 Temp Set Pt: 220 C

Temperatures

	Start	End
Open Split:	230	231 C
Xfer Line:	212	215 C
Exit Nozzle:	215	214 C
Manifold:	197	192 C

<no entrys logged>

Background Subtract D:\DATA\LAW93701 Acquired: May-28-1987 20:20:40
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P3---50 UG/L I.S. + SURR.----- (X 1)
 Average of: 1025 to 1025 Minus: 1081 to 1081 100% = 3688



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 93701
 Client Sample ID: TS-P3

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 06/01/87
 Date Analyzed: 06/02/87
 Dilution Factor: 2.0

METHOD 625

AS Number		UG/L		CAS Number		UG/L
62-75-9	N-Nitrosodimethylamine	20	<	100-02-7	4-Nitrophenol	100
108-95-2	Phenol	20	<	121-14-2	2,4-Dinitrotoluene	20
11-44-4	bis(2-Chloroethyl)Ether	20	<	606-20-2	2,6-Dinitrotoluene	20
5-57-8	2-Chlorophenol	20	<	84-66-2	Diethylphthalate	20
541-73-1	1,3-Dichlorobenzene	20	<	7005-72-3	4-Chlorophenyl-phenylether	20
06-46-7	1,4-Dichlorobenzene	20	<	86-73-7	Fluorene	20
5-50-1	1,2-Dichlorobenzene	20	<	534-52-1	4,6-Dinitro-2-Methylphenol	100
39638-32-9	bis(2-Chloroisopropyl)Ether	20	<	86-30-6	N-Nitrosodiphenylamine (1)	20
621-64-7	N-Nitroso-Di-n-Propylamine	20	<	101-55-3	4-Bromophenyl-phenylether	20
7-72-1	Hexachloroethane	20	<	118-74-1	Hexachlorobenzene	20
98-95-3	Nitrobenzene	20	<	87-86-5	Pentachlorophenol	100
78-59-1	Isophorone	20	<	85-01-8	Phenanthrene	20
8-75-5	2-Nitrophenol	20	<	120-12-7	Anthracene	20
05-67-9	2,4-Dimethylphenol	20	<	84-74-2	Di-n-Butylphthalate	20
111-91-1	bis(2-Chloroethoxy)Methane	20	<	206-44-0	Fluoranthene	20
20-83-2	2,4-Dichlorophenol	20	<	129-00-0	Pyrene	20
20-82-1	1,2,4-Trichlorobenzene	20	<	85-68-7	Butylbenzylphthalate	20
91-20-3	Naphthalene	20	<	56-55-3	Benzo(a)Anthracene	20
87-68-3	Hexachlorobutadiene	20	<	117-81-7	bis(2-Ethylhexyl)Phthalate	20
9-50-7	4-Chloro-3-Methylphenol	20	<	218-01-9	Chrysene	20
77-47-4	Hexachlorocyclopentadiene	20	<	117-84-0	Di-n-Octyl Phthalate	20
88-06-2	2,4,6-Trichlorophenol	20	<	205-99-2	Benzo(b)Fluoranthene	20
1-58-7	2-Chloronaphthalene	20	<	207-08-9	Benzo(k)Fluoranthene	20
31-11-3	Dimethyl Phthalate	20	<	50-32-8	Benzo(a)Pyrene	20
208-96-8	Acenaphthylene	20	<	193-39-5	Indeno(1,2,3-cd)Pyrene	20
06-20-2	2,6-Dinitrotoluene	20	<	53-70-3	Dibenz(a,h)Anthracene	20
3-32-9	Acenaphthene	20	<	191-24-2	Benzo(g,h,i)Perylene	20
51-28-5	2,4-Dinitrophenol	100	<			

The Lab ID for data on this page is B93701.

(1) - Cannot be separated from diphenylamine

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC

06/02/87 10:43:00

SAMPLE: LAW-HT208087H-TS-P3-500-1-5/27(DR)-6-1(DE)

CONDS.: 40/4-300@10-RTX5

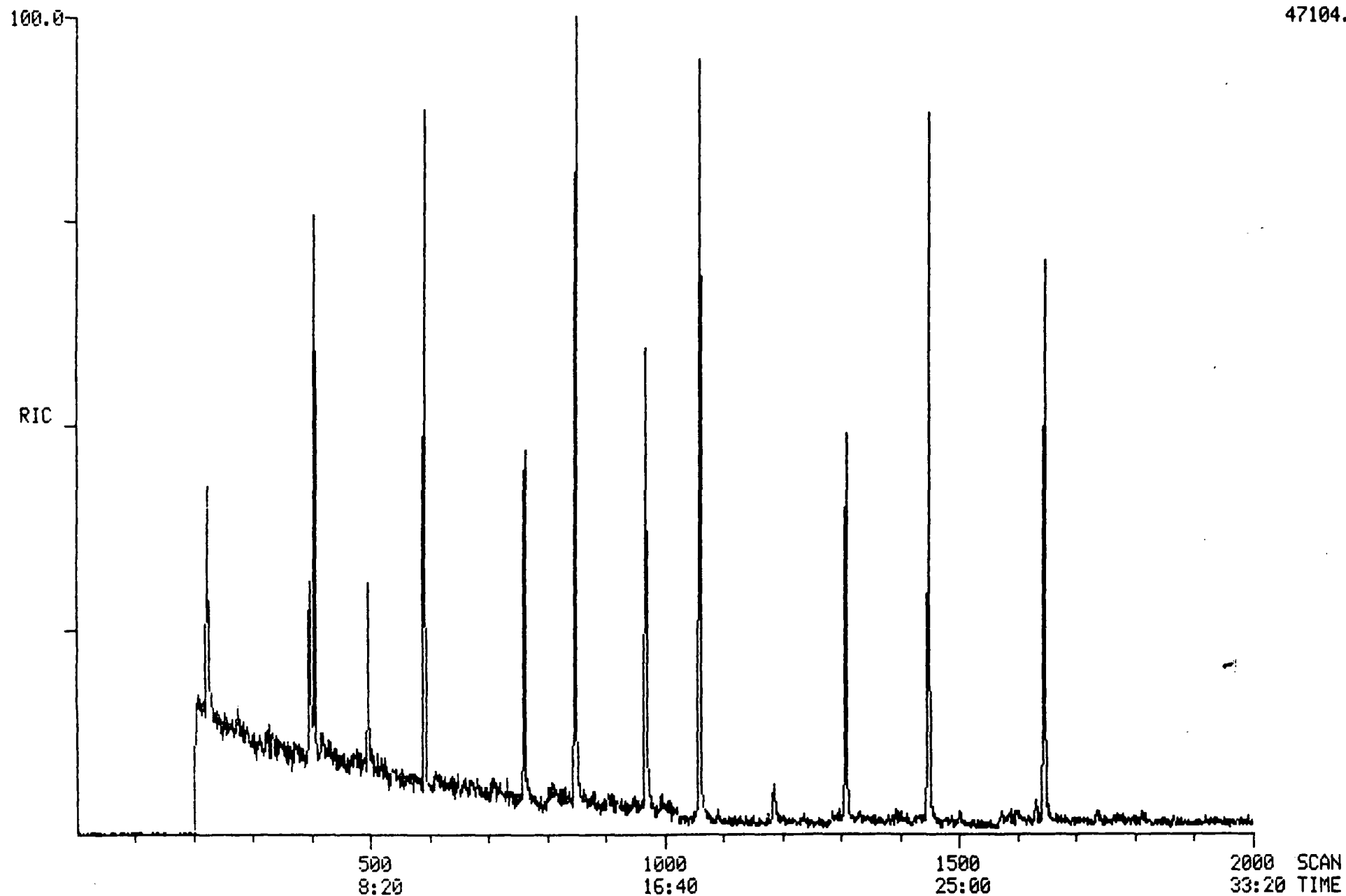
RANGE: G 1.2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: B93701 #1

CALI: B93701 #3

SCANS 1 TO 2000

47104.



6/2/87 10:43:38

SCAN 1 OF 2000

Acquisition started

Acquire

Run 0: B93701

ACQUIRING

06/02/87 10:43:00 + 0:02

Free sectors: 5238

Scan: 2 of 2000

Sample: LAW-HT208087H-TS-P3-500-1-5/27(DR)-6-1(DE)

Conds.: 40/4-300@10-RTX5

Formula:

Instrument: A

Weight: 0.000

Submitted by: LAW ENG.

Analyst: DIFED

Acct. No:

```
***** GC PARAMETERS *****
Loaded GC Desc: BN      Current GC oven tmp: 40 DegC      Injector : 295 DegC
Current GC Desc: BN      GC elapsed time : 0: 3 min      Int. oven : 280 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min)      Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 34.5
2 40 - 300 10.0 26.0 30.5 Divert 34.5 6.0
3 300 - 300 - 3.0 33.5
4 300 - 300 - 1.0 34.5
```

```
***** SCAN PARAMETERS *****
```

```
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05

Cent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2

Min Peak Width: 4 Min Frag Width %: 80 Min Area: 25
ADC Threshold: 1 Baseline: 0
```

***** Mode: Centroid positive ion + R1 (Temp)

```
Interface number 0
Sub-interface number 0
# of acqu buffers 10
Instrument type Q
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4
```

6/2/87 11:17:00

ACQUISITION COMPLETED

SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	594.1	2000.0	29.7	105138.	53. 53.



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093702
Invoice Number 218593
June 03, 1987

Law Engineering Testing Company
5500 Guhn Road
Houston, Texas 77040

Attention: Kendall L. Pickett

Sample Description: Metropolitan/Austin HT-2080-87H
TS-P4

Sump Pit 4

Date Sampled: 05/26/87

Date Received: 05/27/87

		<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Silver total</u> EPA storet number 01077	< 0.05	<u>mg/l</u> 05/28/87	1:10 pm	GS
<u>Arsenic total</u> EPA storet number 01002	< 0.05	<u>mg/l</u> 05/28/87	2:43 pm	GS
<u>Barium total</u> EPA storet number 01007	2.4	<u>mg/l</u> 06/02/87	1:52 pm	GS
<u>Boron total</u> EPA storet number 01022	0.67	<u>mg/l</u> 06/02/87	11:00 am	APM
<u>Cadmium total</u> EPA storet number 01027	< 0.02	<u>mg/l</u> 05/28/87	1:42 pm	GS
<u>Chloride</u> EPA storet number 00940	64	<u>mg/l</u> 06/01/87	10:00 am	JA
<u>Chromium total</u> EPA storet number 01034	< 0.05	<u>mg/l</u> 05/28/87	11:48 am	GS
<u>Copper total</u> EPA storet number 01042	< 0.05	<u>mg/l</u> 05/29/87	11:26 am	GS
<u>Cyanide total</u> EPA storet number 00720	< 0.05	<u>mg/l</u> 06/03/87	10:00 am	APM
<u>Formaldehyde</u>	< 1	<u>mg/l</u> 06/02/87	5:00 pm	DDP



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 093702, page 2
Law Engineering Testing Company

<u>Mercury total</u> EPA storet number 71900	< 0.005	<u>mg/l</u>	05/20/87	8:00 am	GS
<u>Phosphorus</u> EPA storet number 00669	0.35	<u>mg/l</u>	05/28/87	2:00 pm	JA
<u>Manganese total</u> EPA storet number 01055	< 0.05	<u>mg/l</u>	06/01/87	3:30 pm	GS
<u>Nickel total</u> EPA storet number 01067	< 0.05	<u>mg/l</u>	05/29/87	3:17 pm	GS
<u>Orthophosphate</u>	0.24	<u>mg/l</u>	05/28/87	1:30 pm	JA
<u>Lead total</u> EPA storet number 01051	< 0.1	<u>mg/l</u>	05/29/87	11:00 am	GS
<u>Phenolics total recoverable</u> EPA storet number 32730	< 0.05	<u>mg/l</u>	06/01/87	5:00 pm	NDW
<u>Priority Pollutants</u>	enclosure				
<u>Selenium total</u> EPA storet number 01147	< 0.05	<u>mg/l</u>	05/28/87	4:19 pm	GS
<u>Sulfate total</u> EPA storet number 00945	120	<u>mg/l</u>	05/29/87	12:30 pm	JA
<u>Organic carbon total</u> EPA storet number 00680	41	<u>mg/l</u>	06/02/87	2:45 pm	JA
<u>Volatile organics</u>	enclosure		05/28/87		
<u>Zinc total</u> EPA storet number 01092	< 0.05	<u>mg/l</u>	05/29/87	3:50 pm	GS

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Pastalaniec



SOUTHERN PETROLEUM LABORATORIES, INC.

Sample ID:Law--2080--TS-P4

SPL Lab ID:93702

Date Injected 5-28-87

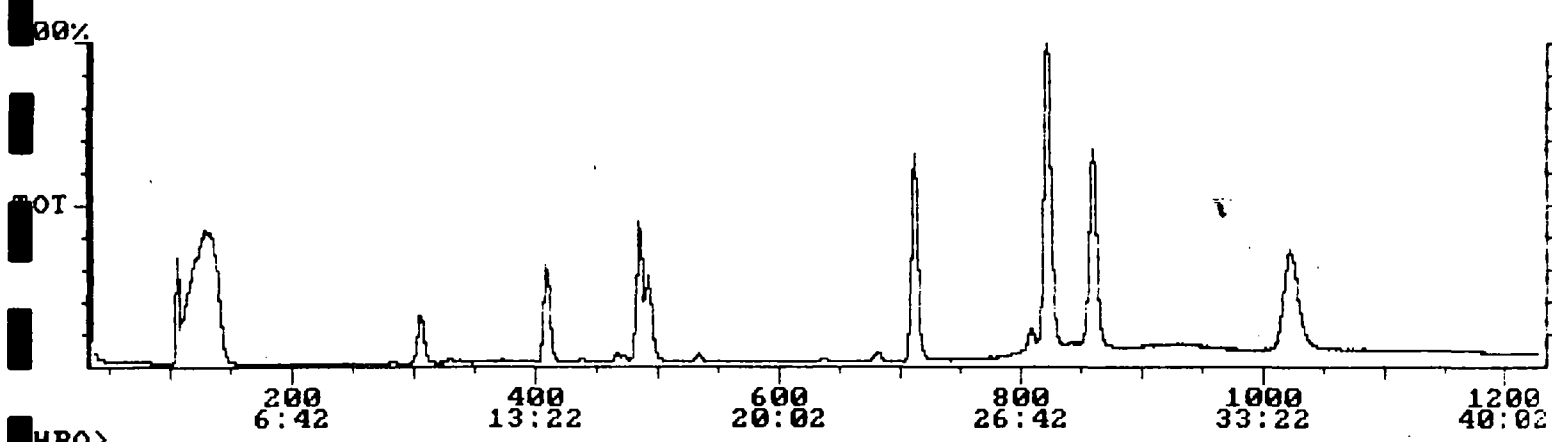
ND = Not detected or below 5 ug/l

VOLATILES

SCAN	COMPOUND	ug/l
408	Bromochloromethane(Int. Std.)	50
711	1,4-Difluorobenzene(Int.Std.)	50
859	Chlorobenzene-d5(Int.Std.)	50
ND	Acrolein	
ND	Acrylonitrile	
ND	2-Chloroethylvinyl ether	
ND	Bis(chloromethyl)ether	
ND	Chloromethane	
ND	Bromomethane	
ND	Dichlorodifluoromethane	
ND	Vinyl chloride	
ND	Chloroethane	
ND	Methylene chloride	
ND	Trichlorofluoromethane	
ND	1,1-Dichloroethene	
ND	1,1-Dichloroethane	
ND	trans-1,2-Dichloroethene	
ND	Chloroform	
ND	1,2-Dichloroethane	
ND	1,1,1-Trichloroethane	
ND	Carbon tetrachloride	
ND	Bromodichloromethane	
ND	1,2-Dichloropropane	
ND	trans-1,3-Dichloropropene	
ND	Trichloroethene	
ND	cis-1,3-Dichloropropene	
ND	Benzene	
ND	1,1,2-Trichloroethane	
ND	Dibromochloromethane	
ND	Bromoform	
ND	1,1,2,2-Tetrachloroethane	
ND	Tetrachloroethene	
ND	Toluene	
ND	Chlorobenzene	
ND	Ethylbenzene	
ND	Xylenes	
492	1,2-Dichloroethane-d4(Surr.)	113% Rec
821	Toluene d-8(Surr.)	107% Rec
1020	Bromofluorobenzene(Surr.)	113% Rec

SOUTHERN PETROLEUM LABORATORIES, INC.

Daniel D. Castaneda

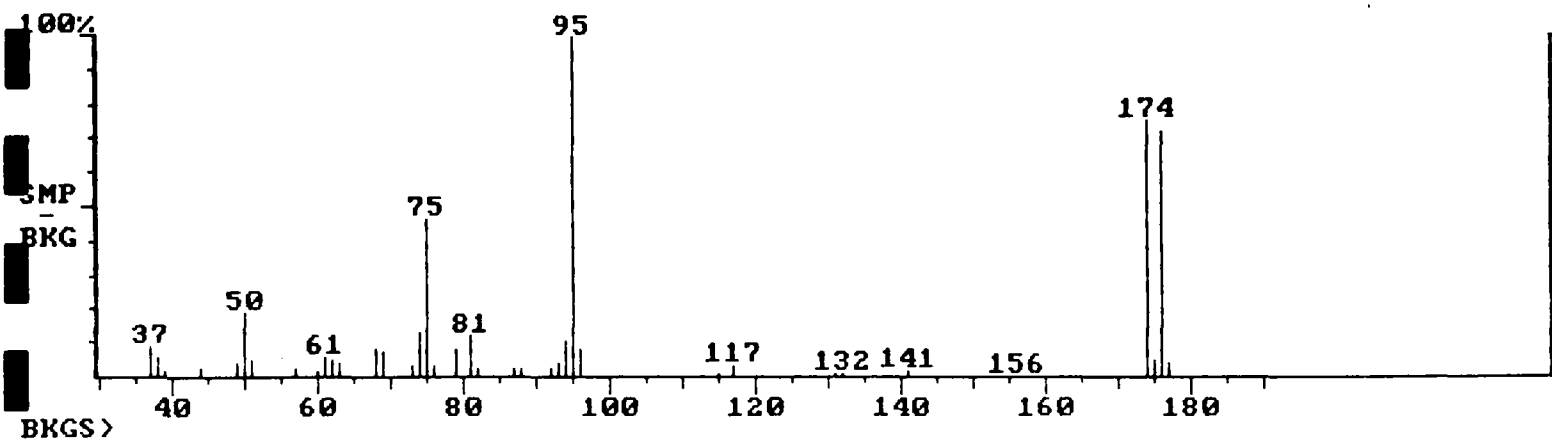


Log File Filename: LAU93702 Acquired: May-28-1987 At: 21:19:42 (9:19 pm)
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P4---50 UG/L I.S. + SURR.----- (X 1)
 Total Run Time: 41:02 min:sec Valid Data From Scan: 1 to Scan: 1230

Acqu Parameters	ITD Calibration	Instrument
Acqu Mode: M.I.D	Slope: 6.316 dacs/amu	Filament #: 1
Scan Range: 35-260 amu	Std Dev: 0.042 dacs/amu	Multiplier: 1800 Volts
Scan Time: 2.000 secs	Defect: 0 mmu/100amu	Temp Set Pt: 220 C
Threshold: 1 counts		
A.G.C. Mode: ON	MID Tune Sens: 9000	Temperatures Start End
Micro-Scans: 10	(1) 35-80 u Tune: 25	Open Split: 229 231 C
Fil/Mul Delay: 0 secs	(2) 81-130 u Tune: 41	Xfer Line: 216 218 C
Sched Time: 41 minutes	(3) 131-176 u Tune: 55	Exit Nozzle: 218 216 C
User Abort: no	(4) 177-260 u Tune: 71	Manifold: 195 187 C

<no entrys logged>

Background Subtract D:\DATA\LAU93702 Acquired: May-28-1987 21:19:42
 Comment: LAW ENG.--MET/AUSTIN-2080--TS-P4---50 UG/L I.S. + SURR.----- (X 1)
 Average of: 1023 to 1023 Minus: 975 to 975 100% = 5460



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: SPL Houston
 Lab Sample ID: 93702
 Client Sample ID: TS-P4

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 06/01/87
 Date Analyzed: 06/02/87
 Dilution Factor: 2.0

METHOD 625

CAS Number		UG/L	CAS Number		UG/L
62-75-9	N-Nitrosodimethylamine . . .	20 <	100-02-7	4-Nitrophenol	100 <
108-95-2	Phenol	20 <	121-14-2	2,4-Dinitrotoluene	20 <
11-44-4	bis(2-Chloroethyl)Ether . . .	20 <	606-20-2	2,6-Dinitrotoluene	20 <
5-57-8	2-Chlorophenol	20 <	84-66-2	Diethylphthalate	20 <
541-73-1	1,3-Dichlorobenzene	20 <	7005-72-3	4-Chlorophenyl-phenylether	20 <
106-46-7	1,4-Dichlorobenzene	20 <	86-73-7	Fluorene	20 <
5-50-1	1,2-Dichlorobenzene	20 <	534-52-1	4,6-Dinitro-2-Methylphenol	100 <
39638-32-9	bis(2-Chloroisopropyl)Ether	20 <	86-30-6	N-Nitrosodiphenylamine (1)	20 <
621-64-7	N-Nitroso-Di-n-Propylamine	20 <	101-55-3	4-Bromophenyl-phenylether	20 <
7-72-1	Hexachloroethane	20 <	118-74-1	Hexachlorobenzene	20 <
8-95-3	Nitrobenzene	20 <	87-86-5	Pentachlorophenol	100 <
78-59-1	Isophorone	20 <	85-01-8	Phenanthrene	20 <
8-75-5	2-Nitrophenol	20 <	120-12-7	Anthracene	20 <
05-67-9	2,4-Dimethylphenol	20 <	84-74-2	Di-n-Butylphthalate	20 <
111-91-1	bis(2-Chloroethoxy)Methane	20 <	206-44-0	Fluoranthene	20 <
120-83-2	2,4-Dichlorophenol	20 <	129-00-0	Pyrene	20 <
20-82-1	1,2,4-Trichlorobenzene . . .	20 <	85-68-7	Butylbenzylphthalate	20 <
91-20-3	Naphthalene	20 <	56-55-3	Benzo(a)Anthracene	20 <
87-68-3	Hexachlorobutadiene	20 <	117-81-7	bis(2-Ethylhexyl)Phthalate	20 <
9-50-7	4-Chloro-3-Methylphenol . . .	20 <	218-01-9	Chrysene	20 <
7-47-4	Hexachlorocyclopentadiene	20 <	117-84-0	Di-n-Octyl Phthalate	20 <
88-06-2	2,4,6-Trichlorophenol	20 <	205-99-2	Benzo(b)Fluoranthene	20 <
1-58-7	2-Chloronaphthalene	20 <	207-08-9	Benzo(k)Fluoranthene	20 <
31-11-3	Dimethyl Phthalate	20 <	50-32-8	Benzo(a)Pyrene	20 <
208-96-8	Acenaphthylene	20 <	193-39-5	Indeno(1,2,3-cd)Pyrene . . .	20 <
606-20-2	2,6-Dinitrotoluene	20 <	53-70-3	Dibenz(a,h)Anthracene	20 <
3-32-9	Acenaphthene	20 <	191-24-2	Benzo(g,h,i)Perylene	20 <
1-28-5	2,4-Dinitrophenol	100 <			

The Lab ID for data on this page is B93702.

(1) - Cannot be separated from diphenylamine

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC

DATA: 893702 #1

SCANS 1 TO 2000

06/02/87 11:58:00

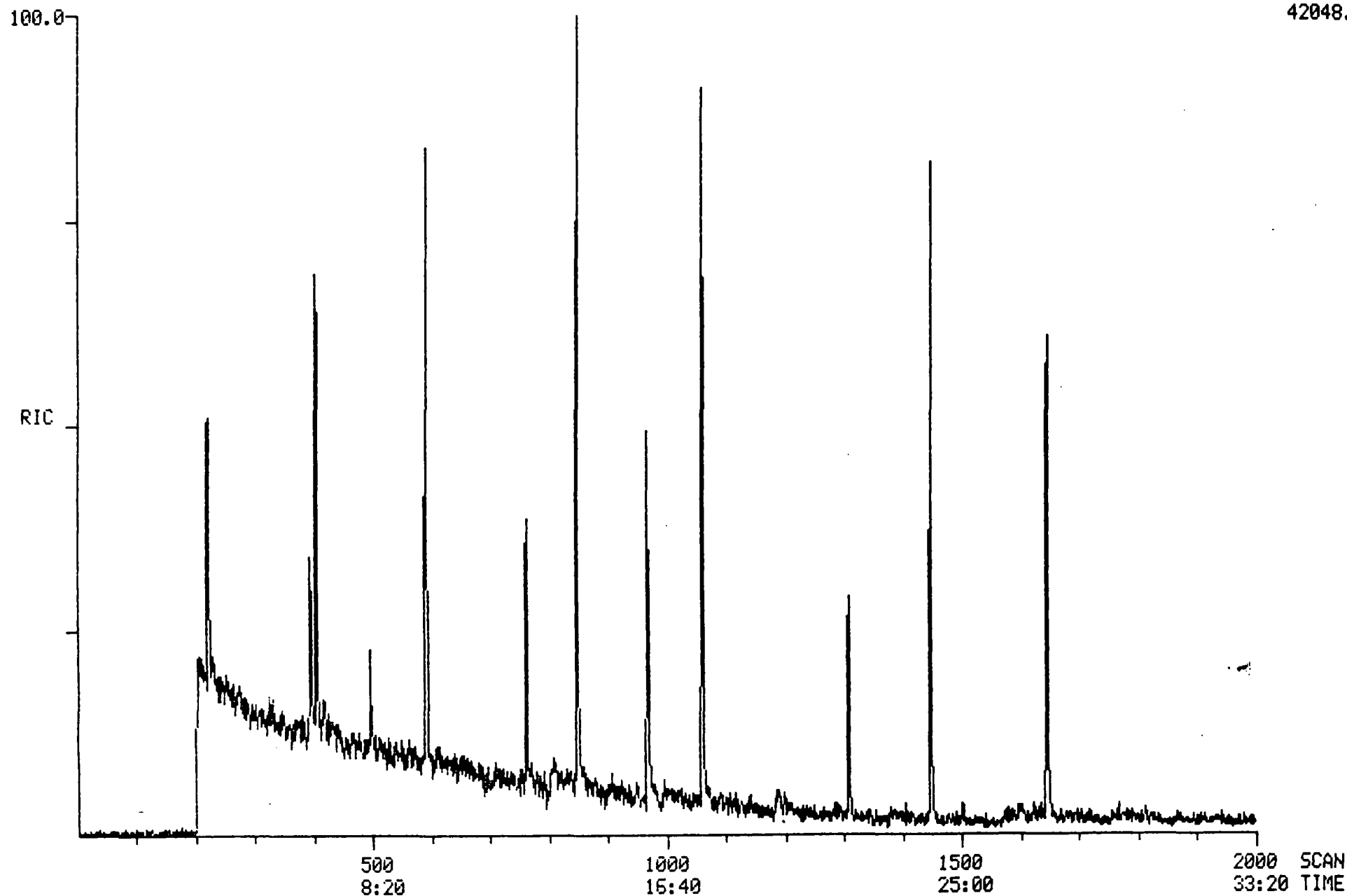
CALI: 893702 #3

SAMPLE: LAW-HT208087H-TS-P4-500-1-5/27(OR)-6-1(DE)

CONDS.: 40/4-300@10-RTX5

RANGE: G 1.2000 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

42048.



6/2/87 11:59:02
Acquisition started

SCAN 1 OF 2000

Acquire Run 0: B93702 ACQUIRING
6/02/87 11:58:00 + 0:02 Free sectors: 4285 Scan: 2 of 2000
Sample: LAW-HT208087H-TS-P4-500-1-5/27(DR)-6-1(DE)
Conds.: 40/4-300@10-RTX5
Formula: Instrument: A Weight: 0.000
Submitted by: LAW ENG. Analyst: DIFEO Acct. No:

***** GC PARAMETERS *****
Loaded GC Desc: BN Current GC oven tmp: 40 DegC Injector : 295 DegC
Current GC Desc: BN GC elapsed time : 0: 3 min Int. oven : 280 DegC
Seq. # Temp(C) Rate(C/m) Time(min) Total time(min) Open Close
1 40 - 40 - 4.5 4.5 Sweep/Split 1.0 34.5
2 40 - 300 10.0 26.0 30.5 Divert 34.5 6.0
3 300 - 300 - 3.0 33.5
4 300 - 300 - 1.0 34.5

***** SCAN PARAMETERS *****
Low mass: 35 Up: 0.95 L* Top: 0.00
High mass: 500 Down: 0.00 L Bottom: 0.05
Cent S/P: 10 Actual: 10 Samp Int (ms): 0.200 Peak Width: 1000.
Frag S/P: 10 Actual: 10 Samp Int (ms): 0.200 Inten/ion: 2
Min Peak Width: 4 Min Frag Width %: 80 Min Area: 25
ADC Threshold: 1 Baseline: 0

***** Mode: Centroid positive ion + R1 (Temp)

Interface number 0
Sub-interface number 0
of acqu buffers 10
Instrument type Q
Full scale mass 1024 u
Zero scale mass 1 u
Intensity/ion 2
Peak Width 1000. mmu
Offset at low mass 0 mmu
Offset at high mass 0 mmu
Voltage settling time(MS) 4

6/2/87 12:32:23
ACQUISITION COMPLETED
SCANS 1 TO 2000 Centroid

Mode	Scans	Secs	Out of	%	Peaks per scan	per sec
Centroid	2000	610.8	2000.0	30.5	129177.	65. 65.

geotechnical, environmental & construction materials consultants

